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SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT
REFERENCES COMMITTEE

Reference: Air safety – BAe146 cabin air quality

TUESDAY, 1 FEBRUARY 2000

SYDNEY

BY AUTHORITY OF THE SENATE

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SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Tuesday, 1 February 2000

Members: Senator Woodley (*Chair*), Senator Crane (*Deputy Chair*), Senators Ferris, Forshaw, Mackay and O'Brien

Participating members: Senators Abetz, Bartlett, Boswell, Brown, Brownhill, Calvert, Chapman, Coonan, Eggleston, Faulkner, Ferguson, Gibson, Harradine, Hutchins, Knowles, Lightfoot, Mason, McGauran, McKiernan, Murphy, Parer, Payne, Tchen, Tierney, Watson and West

Senators in attendance: Senators Crane, Forshaw, O'Brien and Woodley

Terms of reference for the inquiry:

To inquire into and report on:

- (a) the impact of Airspace 2000 on airspace users, operators and providers, including its safety implications;
- (b) the application of competition policy to services provided by Airservices Australia;
- (c) the impact of location specific pricing; and
- (d) the examination of air safety, with particular reference to cabin air quality in BAe-146 aircraft.

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Committee met at 9.01 a.m.

CHAIR—I welcome everyone to this public hearing of the Senate Rural and Regional Affairs and Transport References Committee and I declare the hearing open. The committee today holds its third hearing in its inquiry into air safety with particular reference to cabin air quality in the BAe146 aircraft. On 22 March 1999 the Senate referred several matters to the committee for inquiry including the examination of air safety with particular reference to cabin air quality in BAe146 aircraft. The inquiry was widely advertised throughout Australia in mid-July 1999. It became apparent as submissions were received by the committee that there was a great deal of interest in the BAe146 element of the inquiry and as a result it was decided to deal with this inquiry as a separate inquiry. Due to the great interest in the inquiry and the technical issues raised by it, a report on this matter was expected to be tabled in the Senate by the last sitting day of February 2000. It is envisaged that, given the committee's program, this report will now be tabled late in March 2000.

To date the committee has received a total of 38 submissions, 20 public and 18 confidential, dealing with the BAe146. These submissions have come from individuals, companies involved in the aviation industry, and government agencies and, I might add, also from several of the professional associations whose members are affected.

Today and tomorrow the committee is holding its third and fourth public hearings in Sydney and Brisbane into this matter. The committee plans to hold its final hearings on the inquiry in Canberra in February.

A *Hansard* transcript of the proceedings is being made. The *Hansard* will be available shortly in hard copy format from the committee secretariat or via the Parliament House Internet home page. It should be noted that the committee has authorised the recording, broadcasting and rebroadcasting of these proceedings in accordance with the rules contained in the order of the Senate of 23 August 1990 concerning the broadcasting of committee proceedings.

Before the committee commences taking evidence, let me place on record that all witnesses are protected by parliamentary privilege with respect to submissions made to the committee and evidence given before it. I underline this: parliamentary privilege means special rights and immunities attached to the parliament or its members and others necessary for the discharge of the functions of the parliament without obstruction and without fear of prosecution. Any act by any person which may operate to the disadvantage of a witness on account of evidence given by him or her before the Senate or any committee of the Senate is treated as a breach of privilege.

While the committee prefers to hear all evidence in public, a witness may seek to give evidence in camera. If the committee accedes to such a request, the committee will take that evidence in camera and record the evidence. Should the committee take evidence in this manner, I remind the committee and those present that it is still within the power of the committee at a later date to publish or present all or part of that evidence to the Senate. The Senate also has the power to order the production and/or publication of such evidence. I should add though that any decision regarding publication of in camera evidence or confidential submissions would not be taken by the committee without prior reference to the person whose evidence the committee may consider publishing.

Today's witnesses represent companies and individuals whose submissions and involvement with the BAe146 will be of assistance to the committee. At the conclusion of this public hearing, the committee will hold an in camera hearing with those who the committee has agreed can give evidence in private, subject to the conditions I referred to earlier. We have a written submission from one of the witnesses, and it is a submission that the witness wishes to be made public. If there is no objection from the committee, we will publish that submission and make it available. I now welcome Dr Donohoe to the table.

[9.06 a.m.]

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DONOHOE, Dr Mark Joseph, (Private capacity)

CHAIR—Would you like to make an opening statement, and then we will invite the members of the committee to ask you some questions.

Dr Donohoe—Thank you. I have thought about this opening statement, and most of what I wish to say is in the report. The only issue that I wish to raise separately is that I think, in this particular issue of the BAe146, there are political and commercial interests that have clouded the nature of inquiring into medical and health problems and into safety issues of the jet. Back in 1998 when I was first contacted by the Chief Medical Officer of Ansett and asked to a meeting, it was the first and only time that I can recall in dealing with employees of a company that a medical officer had made an attempt to get me to change my views on the health of patients that I had seen. At the time I felt there was a threat - an implied threat more than a direct threat - that it would be in my interests to withdraw statements that I had made about safety on the jets and the health of the people I had seen who had been flying on those jets.

Never before, and not since, has any commercial body, where there has been a question of injury to employees, attempted to bring me into a meeting to influence my views and to ask directly for a retraction of my views. I understand that there are ongoing cases in the compensation courts, one of which I was involved with. In my view, damage has been done to the reputations of those who hold a view that long-term harm could have come to these people. I have one direct piece of evidence, and that is that a judge said in the compensation court, secondary to this case, that I was deregistered and that I was not a credible person. The judge finally contacted me and withdrew this in writing but claimed that this was a result of the Ansett case, in which one of my patients had been seen in the compensation courts in which I had appeared as an expert witness. In conversation with that judge, his view was that this is the type of damage that gets done when mud is thrown. I recall an entire day before the court in that case when allegations were made of my being deregistered and of my defaming other people - every one of them unsubstantiated and later withdrawn. People who have said that there are long-term health effects for the people who have been involved in this case believe - and I am one of them - that our reputations have been sullied as a result of this and that there has been some coordination of that in the gathering of expert committees which will hold alternative views and in the exclusion of all people who hold that there could be long-term health problems.

I think that is the only thing that I wish to say. The consequence is that I think we run the risk of commercial and political interests sometimes leading to a loss of care for the interests of the people whose health has been compromised. By that I mean that the workers and the patients that I have seen are sick; people clearly understand that they are sick. The implication is that they are sick because of their work or from travelling on these jets. Instead of an aggressive and active surveillance and care in considering these people's health, it has turned into a political and commercial bunfight, playing with these people's health as though their health is not relevant, as though it is all to do with reputations, who says what and who wins the game in the end.

My concern is not for commercial interests; my concern is only for the patients who see me. Having seen these patients, I would expect that any employer and any expert committees give full consideration to the health of those people and not to commercial reputations, profitability or other commercial interests. My own view is that the health of the people, especially employees, should come first.

CHAIR—Obviously I am obliged to ask you this now: it was a medical officer whom you believe tried to get you to change that testimony?

Dr Donohoe—Yes. I have submitted it; it has been before the courts. I have a record of the conversation and meeting with Dr David Lewis - I think that is his full name, but Dai Lewis is the name he uses - who was, I understand, the chief medical officer for Ansett at the time. This followed a story which appeared, I think, in a Sunday newspaper, and the meeting was two days later in Sydney, at his request.

CHAIR—Did the judge who asked you all the questions about whether you were deregistered, et cetera, indicate where he had got that information?

Dr Donohoe—He was not direct about that information. This came in a separate case in which he refused to allow the proceedings of the case on the basis that I had provided a medical report. What he said in that case, which is on record, was that he understood from his conversations with those involved in the Ansett case that I had been deregistered and that I was not credible.

When I approached him with this information, he called me on the mobile phone. He told me that he had got this information from this case and apologised, and then apologised in writing to me, saying that he fully retracted it and he had mistaken me, obviously, for somebody else. But the discussion was more to do with the mud slinging that went on during the day that I was in court, with these suggestions going around. I would have assumed that this would not stick but obviously some of it does. When reputations are attacked it is impossible to know just where that ends. This is a case where, in a court full of people, a judge has said that I am a deregistered doctor, which is not true and never has been true. He was unable to retract it in any

meaningful way, although he personally apologised. I am unable to do any more than that, but I was aware then of the consequences of political attacks, and that is the first time I had been made aware of that.

CHAIR—Thank you, Dr Donohoe. Senator Crane, do you have any questions?

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Senator CRANE—I have read all of your submission to us. You use some pretty strong, definitive language, as if there is no other alternative or no other explanation, et cetera. I would particularly like to address what is said on page 7 of your submission. You start the paragraph by saying:

Thus, to deny clinical presentations and health problems of those exposed on the basis of inadequate and flawed prior testing is illogical and dangerous...

Could you expand on that statement?

Dr Donohoe—I am talking there about the principles of toxicology. Because it is impossible – this is what the previous paragraphs address – to check the toxicity of complex mixtures, the precautionary principle says, ‘Do not use them until you’re fairly sure that the safety is proven.’ The economic principle says, ‘Use them when you’ve got adequate evidence of safety and then use post marketing surveillance. Use follow-up. Use as good a surveillance system as you can for any adverse health effects to find out whether your beliefs are correct or not.’

Say there is an issue of Mobil jet oil fumes in the cabin. In principle, we cannot actually decide whether they are likely to be toxic or harmful to people. But what we can do is very actively follow up cases in which people have been exposed. If we follow up those cases, take them seriously and look at the possible health effects, then we get to know more about toxicology and become aware of potential long-term risks very quickly. If we deny the presentation – and thus deny clinical presentations and health problems – and simply say that they could not exist because theory says they cannot exist then, just as happened with asbestos and benzene and mercury, we run into the problem that we initially believe there could be no problem. We later find out there is a problem, theoretically and practically. If we miss the presentations of people and deny simply that people could be sick, then we delay the time for finding out that the problem actually occurs.

I am saying that it is not rational to simply deny that problems could exist when we have no idea one way or the other, in theory or in practice, whether they do exist in these circumstances. The only rational way of approaching it is to take all presentations in cases seriously, work it through, get a register of those people who are affected and find out what is common among those people. Then, as time goes by, we can use that information to decide, as a post hoc method, whether we were right in our original guess that Mobil jet oil fumes in the cabin were not harmful. If over time we build up a database which says that clearly some people are affected long time, you revise the original view that these are not harmful in the long term,

That has happened with virtually all the chemicals introduced under the commercial principle: pesticides, herbicides, Agent Orange, mercury and benzene. We always start believing that there is less harm than there turns out to be. Asbestos and smoking are very good cases. We believed that there was no harm. The original attempt to deny that cases could exist then prolonged the time to finding out there was harm. What I am saying here is that I do not believe that this should be another case where we simply deny the possibility and, therefore, ignore cases which could lead us to a better conclusion. I think the cases need to be taken seriously and not be denied in principle.

Senator CRANE—That being the case, are you pointing the finger at somebody in particular in this? Who are you saying is denying?

Dr Donohoe—I am saying that in this case we have doctors and toxicologists saying that there are long-term health problems. In other words, people who have been exposed to these fumes and developed short-term symptoms at the time have had long-term consequences.

Senator CRANE—I understand that. What is the other side of the equation?

Dr Donohoe—The other side of the equation was an expert committee that came to the conclusion that there were no long-term health problems. In the expert committee’s view, although there were short-term problems there were no long-term problems. That was not based on clinical information. It was based on a theoretical concept that there could be no long-term problems in these people. I am not saying this is doctor against doctor or view against view. I am saying that there was at least one expert committee report that said there could be no long-term health problems. They came to that conclusion. It was, as I saw it, even put on the news and has been the subject of shows and a documentary since that time. I have to say that I have not seen that expert committee’s report. I have seen a two-page summary document which may be that committee’s report but I have seen no extensive document, so I am talking second-hand.

Senator CRANE—So you are assuming that does deny –

Dr Donohoe—No.

Senator CRANE—Or do you have a report from somebody else who can confirm what you are saying?

Dr Donohoe—The document that I read is the two-page report that I believe must have been a summary of that committee’s findings. I read this document because one of the patients had received a copy of it. I was not

able to copy that. But what I read suggested that short-term irritant effects were accepted and probably did occur and that long-term health effects did not occur. I am saying that I am aware of both myself and other people coming to conclusions that long-term health effects, as in years after exposure, persisted. I was saying that to deny the clinical presentation just on the basis that it could not be true could tend to prolong the time for finding out that there really is a problem.

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Senator CRANE—In terms of that two-page report, how certain are you that, in fact, that was a summary of the expert committee's report?

Dr Donohoe—I am relying entirely on memory here. The document that I saw was signed off by a number of the people who I was aware were on that expert committee and, as I say, it was a brief report. The signatures of the doctors were upon that document. I would assume that any expert committee would put together a far more thorough document and that there must have been other documents reasoning this through that I had not seen. So I do not have any other documentary evidence about it. I did see signatures of the people on that summary but, at the limit, it could have been a falsified document since I was unable to copy it. It could have been falsified; I could have been tricked.

Senator CRANE—Mr Chairman, have we got a copy of that or not?

CHAIR—No.

Senator CRANE—I might just leave it at that but, hopefully, what you refer to is, in fact, accurate in terms of that representation. I will go to the issue with the BAe146 of the alleged illnesses – or real illnesses; it does not worry me much – of staff working on the planes vis-a-vis the passengers. You made mention of the fact that you had also treated passengers?

Dr Donohoe—Yes.

Senator CRANE—Could you expand on that statement and the ratio between passengers and staff? I have to say, coming from Western Australia, that I have flown thousands and thousands of miles on BAe146s, and I have found them a pretty useful aeroplane in the north-west.

Dr Donohoe—Yes, I also have little doubt that the majority of flyers are flying completely safely in those aircraft most of the time. As I said in my report, the common thing about the two people I have seen is that they have both been previously seriously sick, so they were not the typical flyers who had just had colds, coughs or flu. It goes back to an issue that I raised with Dr Lewis during our meeting on 26 March 1996. He said, 'How is that it is only our staff? How is it that no passengers are affected by these planes?' My question to him was, 'How do you know no passengers are affected?' and he said, 'Well, we would have had them call us.' This is not necessarily true.

People attribute illness to a myriad of different things. If you are simply a flyer on a BAe146 and, having got off the plane, you develop symptoms; you do not necessarily ascribe them to the plane. Without an active surveillance – without going out and asking people who fly BAe146 if they are sick, and asking other people who do not fly if they are sick, and then comparing the rates – you cannot come to a conclusion about whether or not it causes illness in travellers. What Dr Lewis did say to me is that there are many travellers of the BAe146 who do more hours in the air per week on average than the staff members do. His implication was, 'If those people were sick they would have told us,' and I deny that that is the case. In medicine, unless you ask the question, you do not tend to find the answer.

My concern is that two people, both of whom knew nothing about the aircraft, one of whom had been a previous patient of mine and another one whom I had never seen before until they came to me with this history, had both developed severe and prolonged illness immediately after the flight on a BAe146. One of the two of them was aware of the fumes on the plane, complained to staff at the time and then was told by staff, 'Could you fill in a complaint form because this is an issue with this jet?' This person had flown to Queensland a week before on a 737 without any problems at all, had got on the jet on the way back, was aware of fumes that she described as musty and somehow sickening and was sick on the jet before she returned to Sydney. She remained sick for some months afterwards and six months later was still not recovered. This was a relapse of the illness that she had previously suffered, but my concern was that it was within minutes of entry to the plane that she was aware of fumes and it was from that trip that her illness emanated.

One case probably makes no difference; it is just an anecdote. Within a few months, another person, who had lived in Western Australia, came along. She had dated her illness from a flight between Western Australia and, I think, the Northern Territory. When we checked up on the plane, it was a BAe146 flight. Again, she was unaware of any controversy with the jet. Years before, she had had chronic fatigue syndrome, she had been well for some years in between, and her illness relapsed after that flight.

I put them in because I am not a doctor who goes out looking for patients who have been on BAe146 flights. There was no particular reason for those people to come and see me. This second lady did not even know what type of jet it was until she checked later. The consideration for me, as I put in my report, is that there may be something about people who are at risk – people who have been previously sick, people who are pregnant, aged, infirm – that makes them more likely, with a single episode, to become sick.

To me, the issue is not even whether people get sick on these flights all the time. It may be only one in 500 or one in 1,000 who get sick. It may be, overall, not a big issue. But it may be a big issue. Until we have looked at it, until it is taken seriously and investigated, it is not possible to say whether this is a big or a small issue. The fact is that two patients both relapsed after a flight on jets identified as BAe146s and no other patients in my practice have done so. I have not followed through; I certainly do not ask everybody whether they have ever been on a BAe146; it has never been a part of my clinical history. But that raised a concern for me that this may not just involve staff and it raised the issue of assessing whether long-term flyers – people who do stay on these jets and fly on them frequently, and especially anybody who has been on a jet where the seals break and the cabin has filled with mist – should have their health problems actively pursued.

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Senator FORSHAW—Could I take up the issue that Senator Crane addressed to you about the seeming disparity, if you like, between the reports about staff members and the regularity with which these people allege that they have been affected. We have had evidence, for instance, that a staff member who may have been affected will recover and then get back on the plane the next day and start feeling quite ill again. That has been their evidence to us. But as Senator Crane said, there is little, if any, evidence before us about passengers. You say that passengers are not necessarily going to report this or they may not know. But isn't there something inconsistent in what you are putting, in that if staff could be seriously affected to that extent, surely passengers would be affected to that extent, particularly some regular passengers, and that that would show up in-flight? It is not the sort of thing that people might not think about reporting, whereas staff might report it.

Dr Donohoe—I think it is worth separating two things. One is acute short-term effects – the irritation effects that everyone admits can occur, especially when the cabin is filled with smoke. When the seals go, virtually everybody feels the symptoms because of the irritant effects. Irritant effects do not necessarily lead to long-term health problems. They can make a person feel very sick in the short term, yet have no health problems 48 hours later. The concern that I was raising was: what are health effects in the longer term?

With respect to longer term health effects, I could use the analogy of smoking. Smoking may make your throat irritated, red and sore and your eyes might feel dry. It can do all of that, but that does not necessarily mean that you have got a problem with cancer or heart disease at that stage. It took 30 to 40 years of thinking to link smoking with heart disease and cancer, because the health problems ended up distant from the original incident. With respect to the staff, they have an occupation whereby they know the hours that they spend on the jet. It may be that the staff tend to have an over-surveillance for 'Could it be occupational problems which are causing my illness?' People who are passengers on a jet think of a jet as a means of getting from one place to another.

If I am travelling on a jet and I end up in Queensland and I get a cold, I may think it is airconditioning on the jet or any number of things. But if it is the only time I travel on a jet, the risks to my health long term are minimal. I was finding out that there may be a few people previously sick who may be at high risk even with a single flight. I gave two examples of that, not on the basis that that is good science; it is just an indicator that it can happen.

Senator FORSHAW—One of the major suggestions that is being put to this committee – and we still have to consider how we approach all this, but that is a matter for us later on – is that this is a problem that is so serious that it affects airline safety. In your written submission, which I have read, you are quite strong in particular with the remarks you make about Mobil jet oil that it is a hazardous substance. That can lead one to a conclusion, on the basis of the evidence that you say you have had from staff and patients, that we have a potentially hazardous or serious situation here. But at the same time you are also acknowledging that there are thousands of people flying around in these planes and they are flying regularly in Australia and throughout the world quite safely, it would appear. One of your concerns seems to be this particular long-term health effect. What do you say should come out of this inquiry with respect to the issue of whether or not these planes are safe?

As we know, there is an element of risk in flying, whether it be safety issues in terms of crashes or, I would suggest, in terms of health effects. For people who regularly fly, I presume it could impact on their health, their hearing or whatever, because they are regularly in a controlled environment, in the same way as people who spend a lot of time in airconditioning and so on. The dilemma I am having at the moment is that if there are some incidents reported of a number of individuals suffering from this problem regarding the fumes or whatever, but at the same time the plane is operating presumably quite safely around the world, then what do you say we should do with it? You also talk about expert committees. Who are the independent experts that should assess this if you will not accept BASI's report or some of the other bodies that have looked at it?

Dr Donohoe—There are a lot of questions there. One thing that I raise in my report that is important is the difference between safety and health. There may be safety problems without health problems and there may be health problems without safety problems. It is an important distinction. Long-term health problems are not necessarily a safety issue for an airline whatsoever. If cancer were caused in pilots, it is of no consequence to the passengers or air safety.

One of the people I believe you will be hearing from today, Dr Teo, with the evoked response testing, has done tests on some of these people that suggest that reaction times and decision making are delayed. Does that affect long-term health? No. It does not affect long term health necessarily, but, like drinking a few drinks before taking off, can have an impact on safety. Those two things need to be separated. One concern I have is on the safety of the passengers at the time. As I understand it, if the judgment of a pilot or copilot is impaired that increases the risk. What degree it increases the risk to the passengers I am unaware. But just as we would say a passenger could have a few drinks of Scotch on the way and be still functioning at the end, we would not say that it is okay for a pilot to have a few drinks of Scotch on the way.

Senator FORSHAW—That is in your submission.

Dr Donohoe—Yes. My one concern is that I have evidence in some of the people that there are central nervous system effects, not dissimilar to alcohol, around the time of flying. The symptoms that have been described – dizziness and disorientation – deserve serious consideration on the basis of safety, not long-term health risks. As a separate issue, I have seen patients whose long-term health is impaired who appear to have developed problems following either working or travelling on these airlines. My view is that, rather than there being a confrontational approach, these cases should be taken and examined and that further –

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Senator FORSHAW—By whom?

Dr Donohoe—I think this does present a dilemma; I agree. Once you politicise an issue like this, it is easy to put together a committee or experts or to nominate people who you believe will find in your favour. It is done by insurers and defendants in the courts all the time. It would be useful for any committee to be inclusive. So anybody who is to review this should include experts whose views are that long-term health effects could occur and experts whose views are that long-term health effects could not occur. I think it would be useful for a health survey to be designed for people who are either passengers or staff on BAe146s, and you could argue that that should be around the world. There is no reason that Australia should be worse or better than anywhere else. So I would not presume to be expert on how to construct it. What I was saying was that I do not think that it is rational to say, 'There is a problem; there isn't a problem. The one with the biggest credentials wins the game.' There are primary care physicians who see people who are sick –

Senator FORSHAW—I want to interrupt you there because time is getting away. If the problem – for instance, in your view as I read your submission – relates to what you say is the hazardous nature of the jet oil, I would assume that means that the issue could well go beyond BAe146s to other planes. Obviously there is the issue of leaking seals or whatever, but if what you say is that there is a real potential hazardous impact from this oil substance, then we are not just talking about this particular aircraft, are we?

Dr Donohoe—You could be right. As I understand it, the problem with this aircraft is that the engines were not designed – again told by Dai Lewis – for high altitude work of this type. They have largely been used, tacked onto an aircraft and modifications have been made as the years have gone by according to the problems occurring. It may even be that British Aerospace is now in control of the problem and it is less of a problem now than it was two, three, five or 10 years ago. But the story given to me by Dr Lewis about how these engines came to be used – and confirmed by another source in the last three months – suggests that it may have been a problem which was far more likely to occur on these aircraft. The seals clearly do go, and did go historically, on these aircraft with reasonable regularity compared with other aircraft, but there have been reports with other aircraft where similar problems and similar outcomes have occurred. So it is not limited to this aircraft. If a defect in design makes this aircraft far more likely to run into these problems, then that would be the reason that you would see it first in these aircraft.

Senator FORSHAW—I take it from your written submission, and from the earlier comments you made when I arrived, that some of your patients have been involved in workers compensation claims, have they?

Dr Donohoe—Only one.

Senator FORSHAW—Are there any witnesses appearing before this committee that you are aware of who are staff or patients – and I do not want you to name them – who are involved in workers compensation claims?

Dr Donohoe—I must say I have not seen the list of people. If you wanted to show me the –

Senator FORSHAW—That can be checked. I do not want you to identify them, but what I want to ascertain is –

CHAIR—I do not think that is a fair question of Dr Donohoe.

Senator FORSHAW—It relates to Dr Donohoe's appearance because in his submission he refers to the fact that he had –

CHAIR—Well, ask him about his appearance.

Senator FORSHAW—Let me finish, Mr Chairman. In his submission, he refers to the fact that his evidence is based upon patients who have been staff of airlines who have come to see him. There is also

reference to the fact that at least one of those was in a workers compensation claim. I just wondered whether there are any others that you are aware of who are appearing before this inquiry.

Dr Donohoe—Any other compensation claims or any others appearing before the committee?

Senator FORSHAW—Before this committee?

Dr Donohoe—I have only the list of people who are appearing today so I am unaware of any other people.

Senator FORSHAW—Are you involved yourself as an expert witness in any other proceedings?

Dr Donohoe—Not at present. I was involved in one case which was settled in 1998.

Senator FORSHAW—My purpose in asking this so that it is clear is that there are some jurisdictional issues which we will have to address in this committee between what this committee can do in situations where there are issues being dealt with before the courts and that is why I wanted to know.

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Dr Donohoe—I am not aware of any cases or compensation cases pending or outstanding.

Senator FORSHAW—Thank you.

Senator O'BRIEN—Dr Donohoe, can you give us the period of time in which your patients experienced exposure to cabin fumes? Obviously there has been some discussion already about what the history of this aircraft might have been and we have received evidence about problems in the past so it would be useful to get an idea of the period of time that your patients experienced the exposure which you say caused some problems.

Dr Donohoe—There are two of my patients who continue to work with the airline and continue to work on the aircraft in question, although the period of time they have taken off sick and the recurrent illness have been such that they are frequently not at work. So it is right up to the present day. The patients that I refer to were exposed in late 1998. If you want it, my answer would be that the health problems I was aware of predated December 1998. I am unaware of any new health problems or new patients since December 1998 although I am aware of recurrent health problems in certain staff who continue to work with one of the airlines.

Senator O'BRIEN—Concerning those particular patients, when would exposure have commenced? Can you tell us?

Dr Donohoe—In the majority of the workers, certainly prior to 1994. It was 1994 when I was first asked by a colleague of mine to review, I think, three patients at his surgery. I visited his surgery in Manly. I reviewed three patients in an open consultation over a number of hours and took a history, and I subsequently met with those patients and with their union representatives some weeks or months later. I was unaware of any problems prior to, I believe, around mid 1994. I had never heard of the BAe146 prior to that time and I have been aware of no additional patients or problems since December 1998.

Senator O'BRIEN—Thank you. That is useful. Your submission refers us to Mobil jet oil II, and I think you have already been asked some questions about the use of that product in other aircraft. We have been advised that there have been changes to the BAe146 in terms of the oil seals in the engines. Presumably in your discussion with Dr Lewis that was mentioned?

Dr Donohoe—As I am aware, the engineering of that has changed over time on a kind of incremental basis with improvements being made and the aircraft back in the air and when the seals go again further improvements being made. My understanding from Dr Lewis was that this was more of a problem when the jets were first put together and has become progressively less of a problem as the engineering solutions have become more successful in dealing with the problem. Again, as I understand it, these broken seals are now a rare event rather than a relatively common event.

Senator O'BRIEN—You mentioned that this sort of problem was being experienced in other aircraft. What type of aircraft?

Dr Donohoe—Again, this is entirely second hand. What I did see was a documentary which related similar health problems to different types of jets. One thing I am not, and do not pretend to be, is an expert on jets. I do not intend to become one. The documentary simply raised the issue that there were other jets. Dr Lewis was the person who told me that 90 per cent or more of all commercial jets in the world use Mobil jet oil II. It was my assumption that, if there were similar problems in other jets with breakage of seals and leakage into the cabin, it would also be with Mobil jet oil II. That is not based on any direct evidence. That is not because I have asked people; that is simply second-hand from a television documentary.

Senator O'BRIEN—No doubt we will follow it up elsewhere. The common factor in complaints appears to be Mobil jet oil II. I do not think anyone has suggested it is a product used only in the BAe146.

Dr Donohoe—My former answer was that it is not used in that jet, but if you are looking for a place where exposure to heated products may be more common, it will be in a jet where there is mechanical failure and more commonly than in other jets. I think that one of the staff members even said that this had happened on one occasion on a 767. I have no direct knowledge of that. That is all hearsay evidence. I would not like to rest too much on those views. I am only aware of the people whom I have seen. They are all BAe146 passengers or staff.

Senator O'BRIEN—Thank you, Dr Donohoe.

CHAIR—In terms of the Mobil jet oil II, we received a submission yesterday from Mobil but it has not yet been tabled. We can table it now. There is no objection from the committee. They have done some work on your submission, Dr Donohoe. You do not have a copy of this yet, but one of the issues they raise is whether or not you have contacted them about the issue of toxicology in their jet oil.

Dr Donohoe—No. I relied entirely on the toxicology data given to me by Dai Lewis. He gave me a large folder including the toxicology information from Mobil about jet oil II. He gave me a fairly comprehensive dossier on what he called the international incidents with Mobil jet oil II. There are some dozens of pages of information, but that is the only information I got. I did not get in contact with Mobil over this.

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CHAIR—So he was at the time an employee of Mobil?

Dr Donohoe—No, at the time he was the Chief Medical Officer of Ansett.

CHAIR—That is what I meant. Thank you.

Senator CRANE—I just wanted to ask one question. I think you confirmed to Senator O'Brien that you recognise that there has been significant modification done to the BAe146. I have had briefings on that and you acknowledge that. I repeat that I have been a very constant flyer on BAe146s. My question relates to the fact that on a number of occasions you have said 'when the seals go off' as if it happens every second flight. From the briefings that I have had, while some seals did go off before those modifications, it was fairly rare event. Since the modifications have occurred it virtually does not happen. I would just like to clarify your statement when you say 'when the seals go off'. Where did you get that information? Is that second-hand information or do you have evidence that would refute the fact that they do still regularly pop.

Dr Donohoe—I am aware, only by a news report, of something that has happened again with the BAe146 a week or 10 days ago. There were descriptions of passengers with irritated eyes. I have heard nothing more about that. I just assume it may have been yet another event. The seals breaking down and allowing the mist which can cause anything up to reduced visibility and nose bleeding and eye irritation right throughout the cabin is a very rare event. No aircraft would be allowed to fly if that were a common event. By 'rare', I mean that you would not expect it to happen even in one in a thousand flights. So, in the vast majority of flights, there would be no problems with the breaking of those seals. As I pointed out, a patient I saw observed a smell in the jet. I have travelled also in the BAe146; I found no problem with that either.

Senator CRANE—You clarified your statement – and that is what I wanted you to do, because it was open ended.

Dr Donohoe—I have to say – and this is hearsay – that I assume that Dai Lewis was telling you the truth when he said that incrementally these seals have been improved. My understanding is that these common events are fewer and fewer, but I have no direct knowledge of them. I do not have figures to base that on. I would just assume that that would be the normal thing in engineering – to gradually get on top of a new problem that did occur.

Senator CRANE—I hope so.

CHAIR—Thank you, Dr Donohoe, for your evidence. We hope you will soon be feeling a bit better.

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[9.51 a.m.]

LOBLAY, Dr Robert Henry, (Private capacity)

CHAIR—Welcome. I now invite you to make an opening statement, at the conclusion of which I will invite members of the committee to submit questions to you.

Dr Loblay—I am here because I have some familiarity with the issues of the BAe146. It might be helpful if I outline how that came about. My speciality, apart from immunology, is that for the past 20 years I have been doing research into adverse reactions to chemicals, particularly food chemicals but also environmental chemicals. Over the years I have become familiar with many of the issues in this area and with many of the practitioners in this area. I saw a newspaper article in one of the Sydney Sunday papers – I think in early 1998 – quoting Dr Donohoe in relation to some problems with the BAe146. Until that time I had not previously heard about the aircraft or any of the problems associated with it.

Because of my work in the area of adverse reactions to chemicals, I have had a lot of familiarity with Dr Donohoe's views and his *modus operandi*. I thought that the people who were looking into this problem at Ansett ought to be aware of that, so I rang Ansett and was put through to Dr Lewis, who, as it turned out, did not know a lot about Dr Donohoe apart from his personal contact with him. I offered to give him some further information about it, whereupon he invited me to attend the expert panel meeting, which I think you all know about. It was held in the first half of 1998. That is how I got to be on the expert panel.

I have written about these areas, particularly the issue of multiple chemical sensitivity, and it is an area where I have reviewed the literature extensively. I chair a joint expert committee of the college of physicians and the Australasian Society of Clinical Immunology and Allergy looking at multiple chemical sensitivity and also chronic fatigue syndrome on behalf of the college of physicians. So this is an area in which I am very familiar. I am regularly invited to speak to professional audiences about it, and I have written quite a lot about this.

I guess I was asked to go to the expert panel as a person with clinical and research expertise in this area. I paid my own air fare. When I arrived there, Dr Lewis offered to reimburse me the air fare and appropriate fees for coming to the meeting. The reason I bring this up is that, in his submission, Dr Donohoe actually mentions me and Dr Carrol. He says that it is unclear from the documents he has seen what, if any, compensation, considerations, benefits, support, promises or payments were made by Ansett to members of this panel. After Dr Lewis offered to reimburse my air fare, I specifically told him I did not want to be paid for attending the meeting. He was a bit surprised, I must say, and asked why. I said it was because I did not want to compromise my independence. It is quite clear in these kinds of situations that accepting money for going onto expert panels may not necessarily actually compromise one's independence but one may be seen to be compromised. So, just to make it quite clear, I did not accept money for being on this panel. Apart from me, Dr Carrol was the only other clinician on the panel who had had experience with patients who had been exposed to various chemicals. At that point, I had not seen any patients who had been on a BAe146 but Dr Carrol had and he had a long summary of his experience with such patients in the papers that were given before that expert committee. I read all those papers, and I think it is a pretty good summary.

Subsequently, I was asked to see one patient whose case has now been to court and has been settled. I am not sure if it was the same one that Dr Donohoe was referring to. I am intimately familiar with that case and I am familiar with Dr Donohoe's opinions about that case because all his reports were available to me, as well as reports of Dr Teo who you will be seeing later on this morning, I believe, and the report of Dr Judy Ford whose submission, No. 7, you have in the papers here.

One of the things that I drew to the committee's attention was what I referred to before as Dr Donohoe's *modus operandi* in this area. He certainly has not confined his activities to people exposed to fuel fumes. He has interests in many areas – industrial areas, occupational areas where people are using chemicals – and he has particular beliefs and views which essentially come under the umbrella term of 'clinical ecology'. There is a medical pseudo specialty called clinical ecology where there is a belief system that environmental chemicals, ordinary chemicals that we are exposed to every day of our lives, are responsible for chronic long-term damage to health, and the belief extends, obviously, to exposure to chemicals in the air in these aircraft.

The other thing the committee was not aware of was that Dr Donohoe is not a mainstream medical practitioner; he is an alternative practitioner. He is the founding president of the Australian Complementary Medicine Association, now known as the Comprehensive Medicine Association. He practises alternative medicine. He has a wide and well-known reputation for that, and his views are not considered to have much scientific validity within the mainstream specialty areas of medicine. This is common knowledge.

Senator FORSHAW—Could I just interrupt? Could you just explain what you mean by 'alternative medicine' there?

Dr Loblay—He practises a kind of medicine which is a bit of a blend of naturopathy, homeopathy and megavitamin therapy.

The pattern in this particular case, particularly the patient that I saw who has been to court and whom Dr Donohoe has also seen, is pretty typical. The patients get referred from one person to another. I assume that the practitioner he mentioned in Manly who asked him to see the three patients was another of his alternative colleagues; Dr Fluhrer, I would imagine. The patients get seen, they get referred to Dr Richard Teo, who does evoke potential testing on their brain. Nowadays they also get blood sent off to Adelaide to Dr Judy Ford for chromosome testing. It is a regular pattern of referral that many of Dr Donohoe's patients go through, particularly the ones that finish up as compensation and court cases. I have not counted but there must be a couple of dozen cases over the last 10 or 15 years where this pattern has continued.

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I will come to some of the submissions one by one, but there are a couple of points I wanted to bring up about Dr Donohoe's submission. It is pretty typical of the medico-legal reports he writes as well. I am not sure what he told you about his qualifications. He has no specialist qualifications or recognised expertise. He often passes himself off as a toxicologist. In his report to the lawyers on this particular patient who we were referring to who was in the BAe146 he actually used letters after his name on his letterhead which were purporting to show specialist qualifications which are bogus. This is a common pattern –

CHAIR—Is the MBBS bogus?

Dr Loblay—No.

CHAIR—That is all we have before us.

Dr Loblay—I can give you a copy of his report, if you wish.

CHAIR—I think you could have made a submission if you wanted to, but keep going.

Dr Loblay—He makes a number of statements in this submission. I guess I will not pick over every individual line but it is sweeping conclusions about the effects of these chemicals based on very little evidence. He talks about altitude and the lack of oxygen being a factor in enhancing toxicity. He is correct in saying that the partial pressure of oxygen in the blood is lower in people who are flying at altitude, but then he goes on to talk about the oxygen being used up because there is not enough circulation of air, which is nonsense. He then talks about the lack of oxygen enhancing the toxic effect of chemicals. There are I think three submissions in here that talk about the lack of oxygen and altitude enhancing the toxic effect of chemicals – from Dr Donohoe, Associate Professor Winder and one other. I cannot immediately think who that is. Each one of them gives as an example the enhancement of carbon monoxide poisoning in the presence of low levels of oxygen at high altitude. That is correct, but it is a unique issue because carbon monoxide competes with oxygen for the binding of haemoglobin, the red binding substance in the blood. No other chemical does that. The reason that it is toxic at low oxygen levels is that there is more ability of the carbon monoxide to bind to the haemoglobin. But there are not other chemicals that behave this way, so it is quite misleading to extrapolate from carbon monoxide to other potentially toxic substances in this setting.

If that were true, then we would commonly find that there would be recommendations on medications that people should reduce the dosage if they are flying or living at high altitude. To my knowledge, there are no recommendations for alteration of dosage of medication or exposure to any other substance because somebody is at high altitude. In fact, there are millions of people who live at high altitude who do not have to make any adjustment to their exposure to a whole variety of potentially toxic substances because they are at high altitude. So this is another bit of arm waving pseudoscience.

Let me now come to Richard Teo's submission. Richard Teo, as I am sure he will tell you – his CV is there – used to work for WorkCover. I have been collaborating with Professor Wai On Phoon, who is the professor of occupational medicine at Sydney University, for nearly 10 years. Professor Phoon used to be Dr Teo's supervisor at WorkCover. In 1994 or thereabouts he asked Dr Teo to start coming to our clinic. He attended our clinic for about 18 months and did this auditory evoked response potential testing on a large series of our patients – I cannot tell you how many; it would have been going on for 40 or 50 patients – because we were curious to find out whether he was right in believing that this is a good test of neurotoxicity in people who had been exposed to environmental chemicals. The nature of our clinical practice is that we see a lot of patients with these kinds of problems from a whole variety of occupations and walks of life, so once a week Dr Teo used to come and test two, three, four or half a dozen patients under our supervision with this particular test.

It is important to point out that his original work was in a clearly defined set of patients who had been exposed to solvents at potentially toxic levels and he was able to show that this evoked response was abnormal in those patients compared with healthy people. But what he did not do was use the test on people who had a whole variety of other illnesses unrelated to chemical exposure to find out how reliable this test was as a measure of neurotoxicity.

This is a very common problem in developing diagnostic testing medicine, that people test patients with clearly defined illness, compare them with healthy people, find that in 99 per cent of the sick people the test is abnormal, that in all the healthy people it is normal, and so this is a fantastic test. Then it is put into practice and suddenly people use the test on a vast array of people with a variety of other conditions and exposures. They suddenly start to find that the false positives are creeping in and eventually with many tests the false

positives turn out to be more common than the true positives, so many of these tests turn out to be useless for diagnosis.

This is what happened with Dr Teo's test. It became clear to us – he was there with us for about 18 months – that this test could not distinguish between those people who had been exposed to chemicals and those people who had not been exposed to chemicals. It did not correlate with their actual symptomatic state of health in those people who had been exposed to chemicals. In other words, when they felt well, the test could be abnormal; when they felt unwell, the test could be normal, and it fluctuated from one visit to the next. We found the test abnormal in perfectly healthy people and people with a variety of other conditions – allergies, other diseases quite unrelated. So our conclusion was that this test is of no diagnostic value, but it keeps getting trotted out in court cases and I have seen a dozen or more cases where this has been thrown up as a reliable test of neurotoxicity. I am sure you will hear more about it from Dr Teo and I think you should take it with a grain of salt.

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Next, I would like to come to Dr Judy Ford. Her submission is No. 7. The first time I came across Dr Ford was about two years ago when I heard her give a talk at a meeting on chronic fatigue syndrome. She presented what she was putting forward as research data purporting to show that many of the patients she had tested with chronic fatigue syndrome – who, as it happened, were Dr Donohoe's patients; he was sending her the blood – had chromosomal abnormalities of the kind she describes in this submission. She came to the conclusion that many patients with chronic fatigue syndrome experience their illness as a result of exposure to environmental chemicals. Without going into too many details, I have been to many scientific meetings over the years and I have to say that the quality of her presentation was such as to make me wonder whether she had the expertise to reach these conclusions, particularly when the next day at a public meeting she stood up and told 500 chronic fatigue sufferers that her chromosome tests could detect chemical damage to the chromosomes from exposure to common household cleaning agents, detergents and other common substances used in everyday life, that she would be able to predict which of them were going to get cancer or have miscarriages as a result and that they should send their blood to her in Adelaide. At the back of the hall they could collect her business card and all the information about how to have these tests done.

After hearing this astonishing presentation, I rang the President of the Genetics Society of Australia to find out about this person. I am afraid that my worst fears were confirmed. She is a card carrying member of the society, but the society has been trying to expel her because they consider her behaviour at conferences to be completely inappropriate. I sent them the material that she presented at this conference. They circulated it among their members and some overseas experts, and I have a letter from the society saying that Dr Ford does not have the expertise to make the conclusions that she has drawn, that her publications do not stand up to scrutiny and that they do not believe that these testing methods are adequate to diagnose chromosomal damage from environmental chemicals. She has gone out into private practice now and offers this as a diagnostic service.

These are the issues which I think the committee ought to know about in relation to the submissions. These are the issues that I drew to the attention of the expert panel. As far as the expert panel is concerned, I have got two very large files here with me but I will not go through them. Let me summarise by saying that the panel was presented with a very large amount of data in terms of the monitoring of the cabin air that had been done at times when smells were detected. The monitoring had been done in a number of ways. Symptom diaries had been collected by the airline, and it seemed fairly clear from the information that we were presented with that there did not seem to be a connection between the presence of contaminants in the cabin air and the presence of symptoms in the people who had been complaining. I guess you all have copies of the statement to which I was a signatory. That was a consensus statement, and it is based on the very large amount of evidence that we were presented with.

There is one more thing I wanted to point out from the submissions. There are several submissions, including that of Associate Professor Winder. There is a long submission from Judy Cullinane, whom I have not met, and there are references elsewhere in the submissions about the symptoms that people are complaining of, such as chemical toxicity or neurotoxicity. Many of those symptoms are completely non-specific. Dr Donohoe incorrectly says that these are incredibly rare in the normal population. He quotes figures of 0.1 per cent to one per cent. This is not true. The Australian Institute of Health and Welfare has done population surveys for many years now showing that these non-specific symptoms are present at any one time in 10 per cent of the population. If you survey the population two years later, it is still 10 per cent but they are different people. These are common symptoms but Associate Professor Winder, who is not a medical graduate, frequently leaps to the conclusion that, because they overlap with symptoms that can be seen in people with neurotoxicity, therefore they are evidence of neurotoxicity.

Some of the important ones to draw to your attention are the breathing difficulties that people have, faintness, light headedness, dizziness, inability to think clearly, pins and needles in the arms and legs and around the mouth, blurring of vision and tunnel vision – which is one that Professor Winder mentions. These are all symptoms which are absolutely typical of acute hyperventilation. If any of us around this table were to

hyperventilate for five to 10 minutes, we would get those symptoms. Any neurologist will tell you that tunnel vision is commonly considered to be a symptom of hysteria. Tunnel vision is not a symptom of neurotoxicity. It is not an uncommon symptom in people with acute anxiety and hyperventilation.

I am not denying that there have been problems with air quality and with fumes and so on in the BAe146. That is absolutely clear from the evidence the expert panel was presented with. But when a belief system spreads in a population that a particular work or other environment is dangerous, then people come to attribute these common symptoms to their environment. It is a common phenomenon in this area, and it relates to the questions that Senator Foreshaw asked: why don't passengers complain of these symptoms; why is it the staff? People's beliefs often lead them to mistakenly attribute common symptoms or anxiety symptoms to toxic exposure when they are in an environment where they believe there are toxic chemicals. This is a phenomenon that has been demonstrated in healthy individuals in experimental circumstances as well. So I do not necessarily believe that most of those symptoms that are described are symptoms of chemical neurotoxicity in the way that it has been claimed in these submissions.

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Senator O'BRIEN—Dr Loblay, you make some comments about other practitioners. I think you described Dr Donohoe as being a doctor who practises alternative medicine.

Dr Loblay—That is correct.

Senator O'BRIEN—I detected a note of, if not criticism, scepticism about that sort of practice. It seems to me that there are differing beliefs in the medical profession, and there are a number of doctors who have moved outside of the conventional field who are looking for solutions to problems which the conventional medical practitioners cannot find. Do you accept that there are practitioners who can find solutions using the alternative methods which conventional medical practitioners cannot resolve?

Dr Loblay—I believe that there are ways of relieving people's symptoms by a variety of techniques, some of which are labelled alternative at the moment. The prejudice I expressed about Dr Donohoe was based on a pretty intimate knowledge of his actual practice. I was asked in 1990 by the New South Wales health department to be on a panel to inspect an environmental control unit that he was running in the Manly Waters Private Hospital with his other colleague Dr Fluhrer. We were presented by Dr Donohoe and Dr Fluhrer with a very large volume of information about their actual practices. The panel went to inspect the hospital. We interviewed their patients. I am intimately familiar with his actual practices. We were extremely critical of some of the things that were being done there. They were dangerous and without any scientific basis. My objection to these kinds of practices is that they have no scientific basis, yet claims are made to the contrary. People such as Dr Donohoe put themselves forward as experts.

Senator O'BRIEN—You say they have no scientific basis. It seems to me that debate still rages about some of the alternative medicine practices. Although there may not be a great wealth of information, there is a range of anecdotal evidence that they have some success. I hear what you are saying about your experience with Dr Donohoe. I am just wondering where your evidence will take us given that we have evidence that there has been a problem with some mechanical aspects of the aircraft we are looking into. There have been a great number of people with a variety of symptoms. Without trying to resolve all of the medical and scientific issues, we have been asked to look into a problem. What are you suggesting we should find in relation to the aircraft, the oil and the symptoms? Are you saying that there is no connection?

Dr Loblay—I accept that when there are leaks and fumes come into the cabin people do experience irritant symptoms – irritation of the eye, nose and throat. Many people experience headache and nausea when they are exposed to unpleasant fumes and smells. That is a pretty common phenomenon. I have no difficulty with that. What I have difficulty with is the claim that flying in these aeroplanes regularly and being exposed to the usual cabin air, leaving aside those single episodes where there are significant leaks, is in any way responsible for long-term adverse health effects or even short-term adverse effects. If you read the submission from the woman I mentioned before, she describes in long detail exactly the kind of thing that people often describe in a whole variety of circumstances. She gets acute symptoms, many of which I believe are related to anxiety, which she attributes to the chemicals.

Senator O'BRIEN—So your suggestion is that the symptoms are more consistent with some form of anxiety attack than with any manifestation of ingestion of a gas or other substance?

Dr Loblay—No, I am not suggesting exactly that. Let me give you an example from the patient I know well who is the one we talked about before that went to court. She had genuine symptoms, many of which were not due to anxiety, but her circumstances were extremely complicated. At the time that she was exposed to one of these leaks she got acutely ill, but at about the same time she had been recently divorced, gone on the oral contraceptive pill, which gave her side effects of nausea, become pregnant, had a miscarriage and developed glandular fever. All of those things contributed to a whole variety of symptoms that she experienced over a period of several months. In addition, she was food sensitive and she had been exposing herself to a variety of foods that can aggravate all of those symptoms she was complaining of as well.

Dr Donohoe's view is that all of those symptoms are due to the chemical exposure and the air quality in the aircraft. My view is that it is an extremely complicated, multifactorial series of explanations for any one individual's symptoms, and those explanations can vary from day to day, week to week, month to month within the individual, let alone a whole series of individuals. In Dr Carrol's summary of all the people he saw who were complaining of symptoms in the aircraft, he actually picked out that each of them was experiencing a different cluster of symptoms and that they all had to be assessed on their own merits. That has generally been my experience with all such cases.

Not now referring to the BAe146, people have experienced the same symptoms in a whole variety of different occupational and domestic settings. It is never a simple one-to-one connection between a particular exposure or chemical and a particular cluster of symptoms.

Senator O'BRIEN—Have you had a look at the toxicological data on the Mobil jet oil II? Have you any information you wish to impart about that? I have to say that, given the evidence we heard yesterday about what might or might not be in certain types of aviation fuels, perhaps not everything is on particular MSDSs, but perhaps you could answer the original question on what you know.

Dr Loblay—What I am aware of is what the expert panel was given. We had a large amount of information, all of which I read, and I have read the submissions that are in these books here. That is as much as I know about the actual toxicology. What I would, however, point out – it has been known for 500 years – is that just because a substance is toxic does not mean it is going to cause toxic effects. The exposure dose is the critical factor.

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The real question is not whether these things are toxic or not. Almost anything can be toxic if given in sufficiently large dose or if a person is exposed to a sufficient quantity. The real question is: are the people in the cabin – under normal cabin conditions, not when there is a leak – exposed to levels of any of these compounds which could conceivably cause toxic effects? The evidence the expert panel was presented with seemed pretty clear, that that was not at all likely. And I must say that we had some excellent toxicologists on that panel, Professor Moore in particular.

Senator CRANE—I would like to ask two questions, and can I also compliment you on having read the submissions. That is very useful to the committee – we have many witnesses who come before us who I do not think have even read their own submission, let alone other submissions. There is something I want to clear up in my mind. You mentioned the relationship between low oxygen and carbon monoxide causing certain reactions et cetera, and I understood that side of it, but you said there was no connection between that and the contaminants in the cabin air. I presume when you said 'contaminants in the cabin air' that was related to the oxygen that was also being put in there for the passengers. Can you clear up whether or not the contaminants in the cabin air definitely have no linkage to carbon monoxide? What were you saying there? I did not quite understand that.

Dr Loblay—No, I was not saying anything about that. Carbon monoxide was one of the things Ansett was monitoring when it was collecting air samples from the cabin. Certain amounts can be found and identified in the blood of some people. I was simply saying that three of the submissions make very misleading statements about the potential for any other toxic substance at altitude in the presence of low oxygen to be more toxic because of the lack of oxygen. They make that conclusion on the basis of the example that carbon monoxide is more toxic at low oxygen levels. But the problem is that, as far as I know, it is the only substance – it is not just an example – which can be more toxic under those circumstances. It is not good to be exposed to carbon monoxide in the cabin and you would not want to see high levels of it. But the fact that it can be more toxic when there is less oxygen does not mean that therefore all other potentially toxic chemicals might have more propensity to cause adverse reactions. It does not follow.

Senator CRANE—Thanks for clarifying that. As I said to the previous witness, I have done a lot of flying in BAe146s as a passenger and usually in the front row. I am trying to distinguish between me as a passenger and other passengers and crew operating in there. Because the crew are moving around and active and we sit there as passengers and do not move around, would that create a more severe reaction in crew people than it would in people not moving around or does it not make any difference? Could it vary? What would be your view on that?

Dr Loblay—There are a whole lot of reasons why the crew might be exposed to different air quality in the aircraft. First of all, as I understand it, the cockpit gets air directed in a different way. How it works is in one of the submissions here. There are also levels so that at head height concentrations of chemicals are different from those at seat height. Those were things that have been measured and they have been referred to.

Senator CRANE—That is all in the submission.

Dr Loblay—Yes, and they have been referred to. So it is possible that people could be breathing different air when they are walking about the cabin compared with when they are seated. Also the aft galley was quite different in terms of things that could be measured. The biggest changes in fact were found where the food was

being cooked because that releases a whole lot of food fumes and then all sorts of things happen that show up on the air composition assays. There are many reasons why it could be different.

Senator CRANE—But that would happen to all aircraft?

Dr Loblay—Exactly. Yes.

Senator CRANE—You have basically answered the question. I will leave it at that.

Senator FORSHAW—Can I just move on from there? I would ask you to comment on the BASI report. That was particularly directed at the incident that occurred in the cockpit. Are you aware of the BASI investigation?

Dr Loblay—Not in detail. I know that there was an incident but I do not know the full details.

Senator FORSHAW—The incident, and I have not got the details in front of me, was that the copilot was alleged to have been overcome with fumes and had to hand over to a third pilot who happened to be available, which was not a normal situation. Could you comment about a situation with respect to cabin air quality in the cockpit where the staff are not moving around and are segregated, as I understand it, from the rest of the aircraft?

Dr Loblay—If there is a leak because of the seals breaking down, that could be a potential problem. If there is a pilot who is unduly sensitive to the irritant effects of the fumes, his ability to fly the plane may be compromised, but I would not have thought that that would be the case.

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Senator FORSHAW—But did you ever look at this issue on the expert panel, the impact upon different members or report about different members of the flight crew?

Dr Loblay—Yes. There was an incident described – it may be the one you are referring to – where the pilot flying the plane started to feel dizzy, developed a headache, I think, felt that he was not thinking clearly and handed over to the other pilot. I do not know whether that particular incident was caused by fumes. It may have been that the pilot smelled something. As I said before, in circumstances where a person is exposed to a smell and believes that that smell might be toxic or dangerous, they can become acutely anxious, hyperventilate and then lose control of their faculties. The symptoms that were described in that particular case suggest to me that the pilot panicked.

Senator O'BRIEN—But there were three people in the cabin; two of the three experienced symptoms and one did not.

Dr Loblay—Yes.

Senator O'BRIEN—Whilst it is possible that there could have been some – for want of a better term – hysterical reaction in two out of the three, it is less likely in those circumstances, is it not?

Dr Loblay—No, it is quite the opposite. There have been some interesting studies done in various parts of the world, particularly in school settings and in other settings where people have described what they choose to call mass hysteria which is an outbreak of these kinds of symptoms in circumstances where there is a sudden smell, and rotten egg gas is the most common one coming from a leak in the sewage system or a gas leak. Dozens of people can develop symptoms from exposure to a smell and the whole situation is intensely aggravated if there is a belief which goes around rapidly that they believe it is a toxic exposure. I have seen patients in this situation myself in occupational settings where a smell drifts into a workshop, people believe that it is something toxic, there is panic, people collapse everywhere, they hyperventilate and ambulances are called. It is not uncommon. You would need to know a lot more detail about what the air quality was during that incident, whether there was in fact a leak, whether there was a smell and whether the principal symptoms were irritant ones or ones more likely to be due to hyperventilation and anxiety.

Senator FORSHAW—Can I take you to a related issue, that is, the international experience. The terms of reference of this inquiry include 'the examination of air safety, with particular reference to cabin air quality in BAe146 aircraft'. This issue of whether it is safe or not safe or there are degrees of safety is one which we are supposed to be looking at, amongst other things, I presume. Did you look at situations overseas on that expert panel and, from the rest of your involvement in this issue, is there any widespread evidence that this is a problem throughout the world?

Dr Loblay—No, we did not look at any detailed information. We had the same information that is available to you. We talked about it, but it was not a major part of the discussion.

Senator FORSHAW—Are you aware whether there is or there is not a significant concern about cabin air quality in this aircraft in other parts of the world?

Dr Loblay—My understanding is that there are only two places where that may be of concern. I think that generally it is not. It is the information that is in here. I am just regurgitating what I have read here.

We did spend a bit of time talking about the safety issue in terms of the people flying the plane. It does not actually matter whether the people are experiencing irritant symptoms or acute anxiety symptoms. If they are incapable of flying the plane, it is a hazardous situation. It is a dangerous situation either way. I have thoughts

about how pilot training could be modified to minimise that sort of danger. I think the sort of misinformation that has been circulated among staff, as a result of the activities of Dr Donohoe and colleagues, is endangering the situation more than would have been the case if people had a rather more sensible, down-to-earth approach.

Senator FORSHAW—I understand from your submission that this is not an issue unique to Australia. We are talking here about overseas manufactured aircraft engines. The oil is used all around the world, the planes fly all around the world and airline safety is not something that is confined to within particular borders of particular countries.

Dr Loblay—All over the world, yes.

Senator FORSHAW—I would expect that the issue would be being addressed if it were a critical issue.

Dr Loblay—I agree.

Senator FORSHAW—I would hope so.

CHAIR—I have just one question. In terms of the expert panel and the tests that were done on the effect of the fumes et cetera on the cabin air quality, you have indicated these need to be done after an incident. Do you know if any of those tests were done after incidents at altitude?

Dr Loblay—Yes, they were. There was extensive testing and collection of air samples. They had a specially designed kit carried on the aircraft. The cabin crew were instructed that, as soon as anybody noticed or reported a smell or fumes, they should collect an air sample immediately. Many samples were collected. We had extensive data on all of those samples along with descriptions of the smell, the symptoms, and whether or not there were visible fumes. There was extensive information about that. There was an analytical instrument carried on the aircraft three or four times and air was collected. Professor Winder draws your attention to some of the technical shortcomings of those methods. One shortcoming was that they could not collect air on take-off and landing. Another was that some of the fumes could condense on the inside of the bag and it might not be picked up later on. I do not seriously believe that those are major flaws in the methodology.

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Senator FORSHAW—Mr Chairman, I ask if Dr Loblay could provide the committee with a written CV. We have them from a number of other witnesses. You may be a modest man Dr Loblay but it might be at least useful for the record.

Dr Loblay—I brought one with me. I will leave it with you.

Senator FORSHAW—Thank you.

CHAIR—Thank you, Dr Loblay, for your evidence. A *Hansard* record of the hearing will be available to you.

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[10.44 a.m.]

TEO, Dr Richard Kong Choon, (Private capacity)**CHAIR**—Welcome, Dr Teo. I invite you to make an opening statement and then we will ask you questions.**Dr Teo**—Thank you, Senator. I come here as a private citizen but also as someone who has seen about nine of the crew who have been working on the BAe146 and I have assessed them. Two were pilots and seven were flight attendants.

To enlighten the Senate committee with regard to my experience, I have 30 years of clinical and research experience. I obtained my qualifications in Sydney. I have a BA in psychology in the areas of clinical, abnormal and social and a Master qualification in pharmacology which is the study of drugs and toxicology. I obtained a Master of Science degree at Sydney University in psychopharmacology by research work and I obtained a PhD in the area of neurobehavioural toxicology.

CHAIR—It sounds as though they are genuine.**Dr Teo**—Yes, they are not bogus qualifications – as Dr Loblay would want to put to you – that I got from America with a \$2,000 price tag. They are all from Sydney. Before I go ahead I want to refute what Dr Loblay said about me in his statement previously.

Firstly, he was wrong to say I was under the supervision of Professor Wai On Phoon. Professor Wai On Phoon and I were conducting a study on the effects of glutar aldehydes on nurses at the Prince Alfred Hospital and other hospitals. It was not his invitation, as Dr Loblay said, that brought me to the RPA Clinic. That was a convenient place for us to conduct that research. In fact, Wei On Phoon was not my supervisor; he was working for Worksafe and I was working for WorkCover and we had a common interest. Professor Phoon was interested in the work I had done since 1980. I had developed a technique to look at the effects of chemicals on cognitive functions. It is an objective measure.

From my submission, the committee must be aware that I have all the references and all the publication to show that, and it is not a bogus one either. So what he said about inviting me and chucking me out of his clinic is not true; it is all lies. He has been telling this in court cases, when he is representing the insurance company, and lying about me. So I will have this opportunity to tell you that what he said has been all lies. He talked about my tests being not reliable. Had he read my article, which I will submit to the committee, he would know about the reliability and validity of the tests. Even on the Internet I recently found that in the States they were just testing the reliability and validity of the tests in six hospitals, and they found that it was a good test to be used to investigate cognitive processes. So I was thinking to myself, 'I have done it since 1980,' so I was on the right track. So that was a lie. I thought I should tell the committee what he was saying. In fact, he was saying that I carried out a small project on solvents, and that was a lie too. My project was on the effects of organophosphate which, I think from the submission, was one of the chemicals of emission from aircraft fuel. The chemicals that I was investigating at that time were those used by pest control operators. They were the ones using those chemicals on pest control areas, and I was investigating the effects of those chemicals on brain function. I did that as part of my PhD.

These were basically applied research. I use humans. I do not really use rats or other animals. What I found in that project was that particular group of OPs, organophosphates, will deplete what are called enzymes. It is called the cholinesterase activity, and I relate that to the cognitive function test. I found that when the enzyme was depleted, the more it was depleted, the worse the cognitive function. So that was the one that I thought was pertinent to this investigation, because it was that group of chemicals that was affecting the patients that I have seen. They told me it was aircraft fuel. I did not know what it was at that time. So now that I know, I think it is more pertinent to the case.

Back to Dr Loblay's evidence about me – that Dr Donohoe was using me to get patients to go for compensation. I was testing workers before Dr Donohoe found me, and those workers used my reports to claim for workers compensation, and they were all accepted. So basically Dr Loblay was wrong in saying that I was in cohorts with Dr Donohoe because of that, and that is not true. I was doing that before Dr Donohoe. So that was a complete lie. I do not know why he does that. Today he gives me the opportunity to tell people that he is lying. It is a terrible thing to do to someone, especially to your professional colleagues. What I want to do now is provide the Senate committee with whatever information it wants with respect to what I have seen, what I have assessed, and I hope that the committee will try to resolve the issue rather than try to take sides on who is to blame. I am here to provide information so that we can address the issue efficiently.

CHAIR—Thank you. I wonder whether you could give us, if you can do so in layman's language, a bit of a description of your tests which indicate that there could be loss of brain function in the cases indicated and in terms of pilots or flight attendants.**Dr Teo**—Basically, my test looks at information processing. I use what I call electrodes. It is basically an EEG, an electroencephalogram. The procedure is that the person will be listening to two types of tones – low

tones, which are about 1,000 hertz, and high tones of about 2,000 hertz. So they will be listening to two types of tones via a headphone. While they are listening to the two tones and counting the high tones which come infrequently, I will monitor the brainwaves. One electrode in the middle of the head would give me the best reading. When I was researching I was using 12 electrodes. For practical purposes, I only use one, which is right in the middle of the head, which is called the cortex, and that gives me the best result. While they are listening to the tones and counting the high tones, I monitor their brainwaves right in the middle of the head. The brainwaves will give me two indices. One, which I call N1, represents how well the brain detects signals and the other represents how well the brain makes a decision. So there are two aspects of information processing.

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Any variation to these indices will indicate to me that there is a problem with brain function. If a person is slower to detect signals, it tells me that that is going to be a problem. There are two things: how well the brain detects signals, in terms of how long it takes, and how efficient the amplitude is – the length of the amplitude of the wave. That is, if you like, the efficiency in terms of detecting signals. The other one is the decision making process, which I call the P300. That one tells me how well the brain reacts to signals – the direct reaction of the brain to the high tones or the lower tones. That reaction time is basically the direct decision making time of the brain. I have got a standard of over a thousand people. If there is any variation from the norm, it tells me that there is some problem in terms of the decision making process.

Senator FORSHAW—Dr Loblay's criticism of your test, as I understand it, putting aside personal difficulties for the moment, was that there was a quantum leap from doing your test, for a person undergoing your test, to then concluding that it had been as a result of exposure to cabin air quality and virtually nothing else. In other words, a whole range of other considerations may have been relevant. I took the main thrust of his criticism as being that it was not correct to conclude that there was that causal connection.

As I understand it, what happens is that patients are referred to you, and you are told that they have been working on a plane and they have been exposed to fumes. Then you do the test and you find that there is some impairment in the brain efficiency. My question, to follow on from Dr Loblay's criticism, is: how can you be sure that the result that you obtain is caused by that exposure? How do you rule out all the other possibilities?

Dr Teo—When a patient is referred to me, I will take data such as use of medication or drugs, whether they smoke or drink, sleeping patterns, whether they have a head injury and so on in order to try to narrow - not necessarily to rule out - the possibilities. I do not claim that this is the result of that. No-one can, as Dr Loblay would say. We all know that.

Senator FORSHAW—But I assume you would go on to say that, given that the nature of the work of the people involved is the same, it cannot be just a coincidence.

Dr Teo—Yes.

Senator FORSHAW—What do you then say? I come back to this term of reference. A question arises: if this is the case, can it then be said that the operation of this aircraft is unsafe because there have been certain instances where staff have been affected? You would have heard my earlier questions. When you measure that against what the airlines would say, and those who support their position, why not look at the overwhelming evidence on the other side of the ledger, which is that these planes fly thousands and thousands of hours every year, all over the world. If you measure safety and performance, there is no history of disasters or even of major problems. There have been some reported instances. What I am trying to grapple with is: can you get to the conclusions that some want to suggest; that is, that the plane, the engine or the oil is inherently unsafe to the point where it compromises air safety - whether it be the aircraft itself or the individuals who crew that aircraft?

Dr Teo—It is very difficult to say about the cause and effect, but if that should happen and if there are cases, not simply one incident, where that happens, we will always say, 'There is a greater risk'. That is all we can put it to - a greater risk. I believe that if there is an issue, we should try to address the issue.

Senator FORSHAW—I think that is understood. That is what this committee is about, and I think the company has also acknowledged that there was a problem. They claim it is now fixed. What do you know about modifications that have been made to the aircraft to try to stop these leaks?

Dr Teo—No, I do not know anything about that. What I am saying is that if there is an issue or a problem, both sides should be looking at it and saying that it is an issue that should be looked at in terms of occupational health as well as safety. It is a high risk, if you like. It is a risk one should not take, especially up in the air. I would not want to go up in a 146 if I knew that happened frequently. There is no way.

Senator FORSHAW—I glance over those thoughts sometimes, like last night when I flew back into Sydney on a twin-engine Cessna with one pilot at about 11 o'clock. I was hoping he was not going to have a heart attack. I appreciate what you are saying. This is the issue that I am particularly interested in: how you get from the research and the evidence to what we recommend. What do you say we should do?

Dr Teo—From my point of view you should study it, take some data and do a research project, maybe over a period of months or years, monitoring not only the air quality but also the health of people who are flying - the crew. I do not know what the limitations are. I have only seen nine and they were different flights on the same aeroplane. As a layperson I would say there is a higher risk than flying on another plane. I would not fly on that plane, I would take an alternative flight. As a layperson I would do that.

Senator FORSHAW—I have one final question. Have you had any patients who have been passengers?

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Dr Teo—No, I have not.

Senator O'BRIEN—Most of the questions that I had have been asked. The issue that Dr Loblay raised in answer to my questions suggested that perhaps the symptoms manifest themselves as some sort of hysterical reaction rather than a reaction to chemicals. Does any of your training equip you to respond to that?

Dr Teo—That is an opinion. My tests are an objective measure that you can never fake because the brain will respond accordingly. I believe it is an objective measure of cognitive function. If it were hysteria or whatever you want to call it, it would show. If there were no effect at all, it would show as normal. I have had experience in this since 1980. Just one week ago, one out of a total of 20 that I tested was normal. He had complaints of a rash - an allergy. He had some of the rashes but he did not have any problem. He was the only one who was normal. The rest I saw were abnormal in one area or another. On that basis it is not hysteria; he was from the same group, except that he was not affected by it. He was normal. People want to call it hysteria. It could be but I do not want to pontificate like Dr Loblay does, telling you people that he knows everything. I do not, I only know my area. I will tell you exactly what I see in my area. I will tell you exactly what it is. I am not going to pontificate like he does that he knows everything and no-one else does. I have done 30 years of research and I am still learning, but he is God. Next question?

CHAIR—I am not making any inference about Dr Loblay, but just to balance the record –

Dr Teo—It is all right; you can, I think.

CHAIR—No, I don't, but you said that he had given evidence on behalf of insurance companies, so he has been called by them as an expert witness.

Dr Teo—Yes. He has an axe to grind. He has been telling lies about me because I was given reports to reply on his comments about me. So he has been lying all this time he has been representing insurance companies.

CHAIR—As an obligation of this committee, as he has made accusations about a number of people, we will have to write to them and ask them to reply in terms of the adverse comments he has made. The committee always does that.

Senator CRANE—We will also have to write to him now.

CHAIR—Yes.

Senator CRANE—It is fairly serious to say somebody tells lies.

CHAIR—You weren't here, Senator Crane, and what Dr Teo was doing was replying to the accusations made about him.

Senator CRANE—I was here when he just made that comment there. I am not making a judgment; just making the point that we will also have to notify –

Dr Teo—At the beginning I was, yes.

Senator CRANE—I wasn't here at the beginning. I am talking about the comment that was just made.

CHAIR—In terms of the Ansett and BAe evidence that we received in Canberra, they indicated that there were certainly short-term health risks. They admitted that in the evidence; it is in the transcript. But part of the debate is about whether those health problems are short or long term. I do not know if your tests give us any indication of that.

Dr Teo—So far, the people I have tested have been affected about two years, and they are still not good. So for two years I can say they are not good. So I don't know. Possibly it could be for longer but I don't know.

Senator CRANE—I am sorry I missed some of your address.

Dr Teo—That is all right.

Senator CRANE—I am from Western Australia, and I had to ring my wife and son.

CHAIR—That is very important.

Senator CRANE—It is very important when you are away as much as we are. This comes from the previous evidence and what Dr Loblay had to say. I do not want to get into the interface of accusations flying backwards and forwards, but he did make the point – which I would like your comment on – that you can get the same result from multiple problems. My question is: could you have a number of different illnesses or health problems each one of which, when you do your tests, would give you a very similar result? Or would they show up differently?

Dr Teo—It depends on what the effects of the chemical are. If that particular chemical has what you call a depressant —

Senator CRANE—Can I rephrase that. I am not just talking about chemicals on their own. You could have some other medical problem that could be chemically related or that may not be chemically related.

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Dr Teo—Whatever it is, we have to find out what is happening, what sort of disease it is. If it is Alzheimer's, for instance, yes, it will affect it because what happens is it depresses the brain or numbs the brain. The brain becomes less effective and, therefore, you would have a prolonged, say, decision making process if you have that. What I am saying is we ask the details, whether you have Alzheimer's disease, for instance, or did you have a head injury previously. Things like that we do ask. Have you got dementia? Yes, of course, it will prolong the decision making process. What else is there? If you have got brain damage, for instance, it will affect the decision making process. Is that okay?

Senator CRANE—In effect, you would have different ones. You might not even know that Alzheimer's has started, for example, but that could show up with a similar result if it was an impact or something or other.

Dr Teo—Yes.

Senator CRANE—On the issue of BAe146s, I am sure you heard me tell other witnesses that I have flown a lot in them in the north-west of WA because that is basically the plane you fly in or otherwise you walk. Have you had patients who have flown on or have worked in other aircraft come to you with similar problems?

Dr Teo—No.

Senator CRANE—So only from BAe146s. Did I hear you correctly when you said you had dealt with nine?

Dr Teo—Yes, nine – two pilots and seven flight attendants.

Senator CRANE—Could being active on the plane – as the cabin attendants are in moving around, walking around and serving whereas we passengers sit down and do not move around – be more stressful on the crew or could that not make any difference? Does it depend on the individual?

Dr Teo—It depends on how much exposure the crew has. I suppose that if the air is blowing directly at you the exposure will be greater. That would be for the crew, whereas if you stay stationary the circulation might be different. But, depending on how much air is being exposed, then possibly the more air you get, the more exposure and the more absorption you get, so it is possible.

Senator CRANE—That could apply though to either passengers or crews, couldn't it? You could not identify that it was for one or the other.

Dr Teo—We do not know because we have not measured the dose. If we have measured the dose, we would say, 'Probably it is coming from there,' and maybe, if you are standing directly underneath that for some time, you probably would get the effect more than, say, someone who is not directly exposed to it in terms of the air flow. We do not know.

Senator CRANE—I am just wondering whether, when I next jump on the plane and I reach up and turn on the button, I will be spraying myself with that and so I should stop it.

Dr Teo—Turn it off if you are going to fly on a 146.

Senator CRANE—So you would advise turning off it off in future?

Dr Teo—Turn it off.

Senator CRANE—Since the modifications have been made to the BAe146, have you had any change in those nine? Did you get most of them beforehand or after?

Dr Teo—When is that? I do not know. When was the change?

Senator CRANE—It has happened over a period of time. I could not be precise but over the last five or six years. I could find that out.

Dr Teo—I think 1997 would be the earliest. Most of them were 1998, so I do not know whether that is during the process. The incidents that occurred that these people were in were about 1997 – somewhere about then. I do not know when there was the change.

Senator CRANE—If it is not difficult, it could be useful to the committee for you to get us the dates of each one – not their names but just the dates of when they first came to see you.

Dr Teo—Okay. Do you mean when they saw me or were exposed to it?

Senator CRANE—The first time that they came and saw you.

Dr Teo—Right.

Senator CRANE—It is most likely you would have that on your records?

Dr Teo—Yes.

CHAIR—I have one last question. Firstly, your tests measure alteration in brain function. Is it correct to say that?

Dr Teo—That is right. That is correct.

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CHAIR—Would you say that there is any connection between alteration in brain function or loss of brain function and an ability to fly an aircraft? I think that is a critical question. Could we have your advice on that?

Dr Teo—Yes, there is. If you are slow in the ability of making decisions, especially in flying, and if the ability is diminished, then there is greater risk. I would say, in terms of cause and effect, there is greater risk.

CHAIR—One of the things your measurement does measure is a slow-down in response time. Is that correct?

Dr Teo—Yes, that is correct. It also measures the efficiency of that response.

CHAIR—There are no further questions. Thank you, Dr Teo. The *Hansard* record will be available and we would ask you to check that and make sure it is an accurate description of the meeting.

Proceedings suspended from 11:20 a.m. to 11:32 a.m.

COX, Mr Lawrie, Senior Industrial Officer, Australian Federation of Air Pilots

CHAIR—Welcome. Would you like to make an opening statement?

Mr L. Cox—Yes. The federation has made a written submission which forms part of the documents. Just to advise you, the Australian Federation of Air Pilots covers aviation operations, with the exception of the mainline operations of both Ansett and Qantas. So we cover operations such as Southern and the regional helicopter operations – Royal Flying Doctor Service – and we still have coverage of National Jet. Two of those operations operate the 146 type aircraft. We are aware of the information regarding the 146, and we did previously have coverage of the 146 prior to 1989. We are aware of some of the issues around that time.

Senator CRANE—What don't you cover?

Mr L. Cox—The mainline operations of both Qantas International and the major domestic operation –

Senator CRANE—Between capital cities?

Mr L. Cox—Between capital cities – the 737 operations.

Senator CRANE—Thank you.

Mr L. Cox—The federation's membership at the present time is approximately 1,500 and the position that we take on this matter – and we thank you for the opportunity to make the submission – is that it has been around for quite some period of time. At the outside we make the point that we are not experts in the matter. We do not hold mechanical information or expertise. We do not hold scientific or medical degrees in the compilation of the material that is being gathered. However, we do obviously have an interest in safety, especially where our members are actively involved. You will note from the document itself that we have compiled a series of the reference materials. We have not brought that to you. It actually fits in a briefcase, which I am dragging with me at the moment, and I do not wish to lug you with the same material. However, if there are any of those documents that you wish copies of, the federation is more than willing to make those available to the committee.

CHAIR—We do have this BAe146 flight crew survey, which you have tabled.

Mr L. Cox—Yes, I was referring to that. I will come back to it.

CHAIR—As there are no objections to receiving this document, it will be published.

Mr L. Cox—Thank you. As I say, the documents have been compiled over quite a significant period of time. Those documents relate to information and material that we have been able to gather from inquiries conducted internally by the companies, by the Bureau of Air Safety investigation inquiry into the incident in 1997, the material that we have been able to gather from bodies that have been interested in the process and the materials that we understand were given to the alleged expert panel conducted by Ansett during those inquiries. I might say that, from a pilot's perspective, one of the major concerns that we have is that a lot of the material is not readily available because pilots have a huge concern about their careers. Pilots flying these types of operations are generally into their middle stage or latter stages of career and their highest earning capacity, so they are very reluctant to come forward and identify themselves as being people directly affected by matters that cannot be pinpointed or considered to be black-and-white issues. The issue of fumes, as has been seen even this morning, in the medical opinion is divided. Of course, pilots operating in a regulatory environment tend to have a very blinkered view that if it is not written down or it is not seen, we tend to take the view that we do not wish to be accused of scaremongering.

Another comment that I should make at this point is that at no stage is the federation, or its membership, calling for the grounding of this aircraft on safety issues. We are simply saying that there is a major problem that we have identified. That problem arises from time to time, but it is not a consistent problem that would require the grounding of the fleet and, from a commercial point of view, one can understand the nervousness of the operator, the manufacturer and the supplier of the lubricant - in this case, Mobil's views towards this inquiry - that there may be some adverse comment made about the aircraft and their commercial operations.

What has come out of those documents, however, is that, in respect of the lubricant particularly, we have noticed the changes in the material safety data sheet that Mobil has published over a period of time. Where toxicity or the chemical levels have been published initially on the boxes and the containers of the lubricant, they have then been removed and they have then been reinstated. There is no consistency in that material, or how that material is published. The most recent material safety data sheet that we received from Mobil does indicate that the lubricant has been tested in some instances and that it is their view that there are no medical effects of the process. However, the warning on the very tail end of that material safety data sheet does indicate that long-term exposure to both misting and fumes may have neurological effects. That must sound warning bells to anybody involved in the industry and certainly, anybody exposed, as we understand people have been exposed in the operation of this aircraft.

The role of the Civil Aviation Safety Authority throughout this process is, to say the least, appalling. The authority has simply taken the advice of the commercial operator –

CHAIR—Which authority?

Mr L. Cox—The Civil Aviation Safety Authority has simply taken the advice of a commercial operator that is obviously protecting its basic interests as the regulatory authority, as being the basis of their position that there are no safety concerns in the operation of this aircraft and there are no health effects and no changes or effects on pilots' licensing. It is an unacceptable position from our point of view that the authority can take that stance, particularly with the amount of material that has been given.

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Ansett, of course, have conducted an internal smells committee inquiry and have attempted to make some modifications to the aircraft. We acknowledge that. However, there are still reports going into the relevant Flight Attendants Association and the pilots union covering those pilots that indicate that there are still events occurring on that aircraft as recently as in the last couple of weeks. That means that the situation has not changed. National Jet has relied upon the Ansett material and again, there have not been significant changes in the maintenance level of the National Jet aircraft and there are still incidents occurring on that aircraft.

The Bureau of Air Safety Investigation became involved in the process following a major incident in 1997. That body has attempted to compile some material, but we understand that the majority of the material that was investigated was taken out of the report on its final publication as not being relevant to the specific incident. One does not have to be a Rhodes Scholar to understand that, in that 1997 incident, a pilot became incapacitated whilst in control of that aircraft over the Epping locator in Melbourne. It is a major concern to me because I actually happen to live in Epping. The pilot handed over the controls to the unaffected pilot. That is fine; that is part of the pilot process and that is part of aviation. It was nice that it occurred on that occasion. However, what would happen if we had two pilots that were affected in a two-pilot operation? The obvious consequences of that would be that we would not be sitting here talking about the fumes issue. We would be sitting here through a process similar to that of a Seaview or a Monarch. How many times do CASA have to be told about major incidences such as this before they react?

The doctors and the scientists, as we said, have a conflicting point of view and that has been shown again this morning. We do not take sides. We simply say that there are obviously two views being expressed on the effects of these fumes. We simply would like to get some answers and we would like to have it at least in a scientific fashion.

It is not for lay people like myself – or, with due respect, yourselves – to make decisions on these matters – more particularly, where they do have an international flavour to them. The 146 aircraft are, as we understand it, having problems both in the United States and in Europe. The MD80 aircraft, the McDonnell Douglas 80 aircraft, has also experienced some effects. Obviously, comments made by a parliamentary committee in Australia about the safety of that aircraft would be taken with a grain of salt by some operators in the States and Europe. Therefore, we say that the outcome that is needed is obviously a fairly significant, proper investigation on a scientific basis which covers all aspects. It should not be a case of simply closing your ears and saying that it involves the conservative medical views of a general practitioner or a person who may be qualified in one area of science as against another. It should take all views into account. The only way that that can be done is through the appropriate regulatory authority and at present that is either the Civil Aviation Safety Authority or the Australian Transport Safety Board. One of those two authorities needs to be resourced and should conduct that investigation.

I wish to make two final points.. We tendered to you a document headed 'The 146 flight crew survey'. That is a very short survey. There is no scientific basis to it and I qualify it on that basis alone. We simply put out this questionnaire to as many pilots and flight attendants as we could distribute it to. We note, for example, in National Jet, it was distributed at the Brisbane base but persons unknown removed it from the pigeonholes, so it did not get the wider coverage that we thought it might. However, having regard to the response, which we have conducted on a percentage basis, there are some quite clear concerns that arise from operating pilots. It is our own view at this point that there are two confirmed losses of flying licences which are directly attributed to this issue. There is one that is simply alleged to be a direct effect of this. Careers have been affected in the case of both flight crew and flight attendants generally. Those matters have been aired fairly lengthily before you, regarding compensation cases and so on.

Senator CRANE—You say 'flight crew'. Are you just talking about pilots or does that include attendants as well?

Mr L. Cox—There were some flight attendants who responded to this questionnaire as well. We do not cover flight attendants. However, some flight attendants have been in touch with us as a result of our internal investigations. The Flight Attendants Association have been conducting their own exercise and they are giving evidence to you tomorrow.

Senator CRANE—In effect it makes it broader?

Mr L. Cox—It makes it somewhat broader from our perspective. As I said at the outset, this issue has been around for some years. Aviation is not a major science but it is obviously a major concern to both the travelling public and people involved. It is concerning that these issues had been raised with the Civil Aviation Safety Authority and they have not been properly investigated, in our view. That is certainly what is needed out of this process. The quickest way that I could point to the laxity of the Civil Aviation Safety Authority is to note that yesterday this committee was dealing with the question of the most recent fuel contamination problems in general aviation. We wrote to the Civil Aviation Safety Authority in August 1997 asking questions precisely about the quality control of fuel. We received a response from the Director of Aviation Safety at that point, Leroy Keith, indicating the requirements upon the holders and the audit system that was required for fuel. We received a lax response from CASA at that point, due to the cutting – and, dare I say it, the words ‘affordable safety’ were used. Those areas simply show us the lack of ability of CASA to conduct its affairs properly at this point. On that basis we have serious doubts about CASA’s role in this whole process of the fumes issue generally and their ability to conduct proper investigations. We rely upon our submission generally.

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Senator CRANE—Would you table those letters?

Mr L. Cox—Yes.

Senator CRANE—It is for a different inquiry, but I think it would be very useful.

Senator O’BRIEN—I have asked questions of CASA in relation to that already.

Senator CRANE—Did you get those letters?

Senator O’BRIEN—In relation to that, yes, and I have asked for material to be tendered in relation to the other inquiry which you are chairing, Mr Chairman.

CHAIR—But it would be useful to have them tabled here.

Senator O’BRIEN—MD80 – the McDonnell Douglas 80 – is that an aircraft of approximately the same size as the BAe146?

Mr L. Cox—It is a slightly larger aircraft. It was operated in Australia by Compass 2, Southern Cross Airlines. It is a twin-engine T-tail jet.

Senator O’BRIEN—It just seems to me, from the information we have been presented with, that the only difference of substance between this aircraft and others in terms of their air intake, airconditioning, APU systems, is the size of the aircraft and the particular engine, which it is conceded has had problems with its oil seals. Apart from that, the fuel that is involved here is used widely across a whole range of aircraft around the world. But, apart from what you say about the MD80, there does not appear to be a widespread problem.

One issue that I have raised previously is: how relevant is the size of the aircraft, and therefore the volume of air that it contains, to the problem? You are probably not the best person to answer that, but you have set out a lot of detail in your submission about the aircraft type, about the engine, about the oil, and I just wonder if anyone has given any consideration to the volume of air in circulation and how that might be manifesting itself.

Mr L. Cox—Again, I preface the remarks I make by saying I am not an expert in the mechanical area nor in the circulation systems of the aircraft. But, based on the information that we have been provided, I understand part of the investigations conducted by British Aerospace and Allied Signals, the manufacturer of the engine, also related to the circulation of the air internally in the aircraft. I think Senator Crane referred to that this morning in relation to where people sit and involve themselves. One part –

Senator O’BRIEN—We have actually inspected a refit of an Ansett aircraft, with the new ducting being placed in the top section of the cabin to improve ventilation. We have seen how that works, so I think you can assume that we –

Mr L. Cox—The introduction of the risers removed a lot of the stagnant air at the level that flight attendants would have been walking through and that some passengers were identified as being involved in at chest height during particular phases of the flight. In terms of the intake circulation, there are specific regulations for that. From my limited reading of the *Hansard* to date, there has been some reference to that. I am not up to speed on it from an airworthiness point of view, but I think the committee could look at the references to airworthiness requirements on the aircraft type. I think there was a reference to part 2 or a B section of the particular airworthiness requirements as being met by the Civil Aviation Safety Authority. My understanding is that there is a part A or part 1 that may not be met in terms of the circulation of the intake air that is being brought into the aircraft.

There is also the question as to how the ducting is fitted in the aircraft. There is a dual ducting system which provides a mix of air. On one account of information that we were given, if a duct has become contaminated by the oil leakage within the duct, irrespective of whether one side of the duct is clean is not, it is a mixture of the air coming through the dual ducting system that produces that fume or mist into the aircraft.

Importantly, I have got to say that the aircraft is not doing it every day of the week – and this goes back to the safety question. We are not calling for the aircraft to be grounded simply because it happens every day of

the week. It is a breakdown of the seals; it is the oil getting into the system. It is what happens to that oil when it is burnt and when it then goes into the air circulation within the aircraft. We heard Dr Loblay this morning give evidence about the committee's investigations and analytical material. Some of that was, in our view, one-sided, and it was an exercise done for a particular reason, both on safety –

CHAIR—The air safety committee?

Mr L. Cox—The expert committee. We simply say that that material being collected has delivered a result that was wanted. It was not considering alternative arguments that were being put to get a proper balanced result. I hope that, at the end of the day, it was all producing a result that it was not affecting anybody. The problem is, at the moment, we have a series of flight crew who have lost their medical standards for a flying licence. We have flight crew that are affected that are still flying, and that causes us concerns.

Senator O'BRIEN—You mentioned there airworthiness standards and suggested that particular airworthiness standards perhaps had not been met. Are you saying that there has been some waiver of obligation by CASA in approving the aircraft?

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Mr L. Cox—My understanding is that, at this point in time, there is a question of the qualification of the airworthiness standard that should be applied under the regulations. The evidence that has been given to date has been alluded to as being applied. I do not know whether it has been applied in total in the proper section. That is a question that we intend to investigate further ourselves. I only briefly saw that comment. Again, I have to try and find an airworthiness person who can give me the direct answer on that.

Senator O'BRIEN—I think the committee would appreciate it if you would give us the benefit of any of your communications on that and we obviously would pursue that issue with CASA and anyone else who is affected, where the committee would give an opportunity to comment. It is a suggestion which should not be left floating.

Mr L. Cox—I accept that totally. It is a concern that has been made on the basis of the material that has been given at the moment. The problem at the moment with CASA is that there are so many exemption concessions and movement and flexibility to the regulations that it is hard to imagine what applies and what does not apply sometimes.

Senator O'BRIEN—And a key part of CASA's role, is it not, is approving which aircraft are authorised to fly on regular public transport routes in this country?

Mr L. Cox—It is their role and should always be.

Senator O'BRIEN—It is a key part of it, that is right.

Senator CRANE—To follow up that question with regard to CASA and their role. are you saying that the way the regulations are written is confusing, contradictory or both?

Mr L. Cox—With regard to the regulations and whether they are being complied with in all operations, in the short reading of the submission that was made, my understanding is that they believed that it applied to the air circulating in the aircraft and that it was meeting all the requirements of the regulations. We have doubts about that.

Senator CRANE—You make reference to the roles of CASA and BASI in your summary on page 14. Could you define, as precisely as possible, how you see the roles of CASA and BASI in this particular problem? You are probably aware that we are also involved in another inquiry in what appears to be a conflict of interest in the overriding responsibilities of CASA, Airservices and BASI. So whatever you say here might be useful.

Mr L. Cox—It could also be dangerous, Senator. The Civil Aviation Safety Authority is the regulatory authority charged with the safe operations of aircraft. The Bureau of Air Safety Investigation, as it was then known but which is now the Air Transport Safety Board, has two different charters. It has always been accepted by the federation that the bureau and now the Air Transport Safety Board investigate incidents and accidents as they occur to ensure a full and frank disclosure of all material without fear of prosecution so we can improve safety in the aviation sense. The Civil Aviation Safety Authority has a regulatory responsibility. In recent years, that regulatory responsibility has been lessened significantly. We have gone through a huge period of destabilisation; we have gone through a number of board changes; we have gone through a number of personnel changes. Each of those changes, in our view, has lessened the reputation of CASA operating as a regulatory authority.

Currently, CASA's reputation is not a very productive one in the industry, and that has been a result of a lot of people being critical about the huge amount of regulation in aviation. No-one likes regulation, but we also understand it is necessary in an environment where we work and particularly in aviation, but it also must have respect and enforcement capabilities. At this point in time, we suspect that CASA is not operating that efficiently because of changes and lack of resources, and its arms-length removal from ministerial responsibility. That is certainly unfortunate from our point of view. In the past we had been quite comfortable

with the body operating under the direct control of the minister, where some pressures might be able to be applied.

Operating arms-length at a board, when you have phrases such as ‘affordable safety’ and ‘customer relationships’, tends to lead to a lack of enforcement and a lack of standards. I think we are starting to see some of that now. We certainly saw that as a result of inquiries such as Seaview or Monarch, where the maintenance standards dropped off. Maintenance standards have also dropped off in other areas. Surveillance has certainly dropped off in a number of areas. We would say that maintenance is one of the critical issues in this area of fumes. The bearing seals of the engines require more regular maintenance than identified in other aircraft. That is a role that CASA should be actively involved in.

Senator CRANE—I am of the view, and I doubt whether you would agree with it, that with this process that has gone on over a period of time now with regard to CASA, they have effectively had their authority diminished. They are no longer able to act in an authoritative sort of way in dealing with issues. That creates a wishy-washy situation. Would you agree with that in principle?

Mr L. Cox—Yes, I would. They certainly do not have a reputation or an enforcement strength. Some of their defence of the changes is that it has been a role of successive governments wishing changes.

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Senator CRANE—That is what I meant. Over a period of time the processes created that situation which is something we need to address. In terms of your submission, I really appreciate the fact that you have a good summary here with action needed. Under 14.1, you say:

Independent review, of issue by outside experts...

I am always intrigued where, in an industry like the aircraft industry, you get these outside experts. Are you talking about people out of other industries or getting people from overseas? Can you put a bit of flesh around the bones?

Mr L. Cox—We are simply saying that material is readily available from both overseas and internally in the country. The only inquiry conducted to date has been conducted by a commercial airline with their selected experts. There is no such thing as independence where a commercial entity selects its experts. It is a bit like a royal commission being appointed and getting the answer it wants. We are in a situation where people who have views on the effects of the chemicals, whether they be scientific or medical, should be given the opportunity to have input into those areas.

As I said, I saw the exercise here this morning when Dr Loblay and Professor Teo were slinging rocks at each other. Where those people have a differing view, as to whether people are entitled to those views, I think they are, because they come from different areas in science. But we should not dismiss it simply because it comes from one area of knowledge that might not be accepted by the conservative medical establishment or it is considered far too radical to be accepted by other people. There are people who I believe have got an ability to provide that material input. There is material being compiled overseas by a number of people in these areas investigating the fumes in aircraft – that is how we know about the MD80; that is how we know about the 146 in Europe and the United States – and the effects on flight attendants. Those people and their material, in our view, should be brought together to get some form of reasonable outcome to this investigation. It should not be a matter of saying, ‘We’ve seen the material, we don’t see it as a problem,’ and therefore we go away. That is the problem with CASA. CASA said, ‘We’ve only accepted the Ansett report because they’ve gone out and got their experts. We’ve accepted that material, therefore there is not a problem.’ That is not acceptable. CASA should not be operating in such a way that they simply take a commercial entity’s report – and I am not casting aspersions on Ansett here, but they may have compiled that report for their own purposes. That is being accepted by the regulatory authority as the be-all and end-all. That is totally unacceptable in our view.

Senator CRANE—I was not present at the inspection of the aircraft. I am getting a briefing while I am in Brisbane this week, albeit not on an aircraft. With respect to the feedback that you get from the pilots and crews, is it their view that that the modifications that have been made have improved the situation, made it worse or made no difference?

Mr L. Cox—It has not really made any difference in the cockpit; it is more in the cabin. The risers that were put in the outside cabin and brought in over the top are simply circulating what was considered to be the stagnant air in the centre of the aircraft and down towards the aft galley. That is different from the flight crew’s perspective; they simply have their feeder through the cockpit. The other dilemma that that causes is that if you do have a seal breakdown and you do have burnt fumes coming through the aircraft, it does not matter whether you have the risers or not; the fumes are getting into the aircraft and people are exposed. It is the effects on those people that we have concerns about.

Senator CRANE—But I understand there have also been modifications made to that side of it and it does not happen like it used to?

Mr L. Cox—In some cases there has been increased maintenance. Certainly, I would identify that more in Ansett than I would, for example, in National Jet. In our view, there has still not been enough done to identify the number of incidents, because there is still a general reluctance by both pilots and flight attendants to report

these incidents. Equally, what happens after the incident occurs? What measuring is taken of effects upon those people? What is the baseline effect? I know from experience that hearing loss was a major problem for pilots, for example, in the days of the Fokker 27 operations. There was a baseline hearing test conducted that dealt with the measure so that we could then identify what actual hearing loss had occurred. If there is this alleged toxicity or fume level occurring, there has been no baseline testing conducted on anybody in this industry at this point to understand the effects of it.

CHAIR—If you have any documentation on incidents that have happened overseas – this is what Senator O'Brien was questioning you about – that you could table for us, we would be grateful.

Senator FORSHAW—You referred to the incident that led to the BASI report where the pilot handed over to another pilot on board. Have there been any other specific incidents brought to your attention where a member of the flight crew has been affected and had to hand over their duties, if that were possible?

Mr L. Cox—Not whilst in flight. We are aware of a number of instances where pilots have signed off during a tour of duty on the basis of illness. That has occurred, but that has been generally on the ground. I know of one specific incident where a pilot indicated that he was experiencing headache and nausea but it did not affect him on the final leg of that flight. But he did sign off prior to the end of his tour of duty and depart the scene, and he was criticised by his company at that point.

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Senator FORSHAW—Which company was that?

Mr L. Cox—National Jet.

Senator FORSHAW—Are those instances investigated in any way by the company?

Mr L. Cox—Any pilot failing to complete his tour of duty would be internally investigated by the company, because a reserve pilot would be required to be called out.

Senator FORSHAW—Yes, but I would assume that the pilot would have to make an entry in the log or in his or her report of the flight if they subsequently, when they got to ground, felt that they were not able to carry on the next day or whatever.

Mr L. Cox—There are reports of those that certainly have existed in the Ansett material, and I am aware of that, where maintenance logs have noted the existence of fumes in the aircraft. There has been a deal of contention between flight crew, both cabin and operational crew, as to whether the fumes should be entered into the maintenance log. There is no set requirement or direction on that; it is really at the discretion of the captain at the time.

Senator FORSHAW—The overall responsibility for the safe operation of the aircraft when it is in flight is with the captain, the pilot, is it?

Mr L. Cox—That is correct, the pilot in command.

Senator FORSHAW—I note that in your submission you refer to the fact, and it was said today, that some pilots are reluctant to endanger their career because of possible repercussions. Can I also put to you that, if there was a belief that continuing to fly this aircraft was unsafe, it is almost mandatory, and wouldn't it be expected, that those flight crew members or your organisation would take that matter up with the company? I hear what you also said today. I am not saying it is not a problem. I suppose I am trying to get closer to this issue of when it crosses the line, if you like, to the point where the crew or your association should say, 'No, we are not going to fly this aircraft until you do something about this problem.' Has that arisen yet or not?

Senator FORSHAW—That at all times is the discretion of the pilot in command. I am aware of instances in the past where pilots have continued to fly the aircraft even though it was a safe operation but not considered to be an operation that should have continued, that the aircraft should have been sent for maintenance but, because of the salary structure that existed in the company at that time that operated on an overtime formula, the pilot was obviously reluctant to affect his potential income as a result of that exercise and the engineer finally brought about the ceasing of the operation of that aircraft on the day. I am sorry to be roundabout, but I am trying to --

Senator FORSHAW—I understand. It is not a normal occurrence either, I suppose, in airlines that they ground the planes. It has usually got to reach a fairly serious position before that happens, as we found with the DC10 some years ago.

Mr L. Cox—Correct. Maintenance is located in specific bases. From a commercial aspect, it is always better from a company's point of view that the aircraft returns to a maintenance base that satisfies them. I think that was one of the exercises, for example, in the 747 incident here in Sydney. The aircraft could have diverted to Brisbane and was diverted to Sydney in poor weather conditions that were considered to be part of the causal effects of that incident.

Senator FORSHAW—There have been statements made that a standard for cabin air quality is being developed. From my recollection, this was put to us in one of the opening hearings in Canberra. I think this has been looked at by the relevant associations in the states particularly. Have you got a comment about that?

Mr L. Cox—There is a standard set. I could not tell you the exact title. I know the acronym is ASAG .

Senator FORSHAW—But it is not specifically for airlines.

Mr L. Cox—It is a wider one.

Senator FORSHAW—For airconditioning.

Mr L. Cox—But there is a conflicting view within that body as to whether the standard that was discussed at their meeting early to mid last year was a reasonable standard for people involved in the aviation industry.

Senator FORSHAW—That has been put to us. We could possibly draw your attention to that and, if you wanted to make a further comment, you could. One of the other things that is an issue of conflicting opinion, as we have seen this morning on the medical side, is whether or not compliance with a particular standard, such as the National Occupational Health and Safety Code, is sufficient. This is one of these arguments that is occurring with respect to the toxicity levels or whatever of the oil.

Mr L. Cox—I think I could answer it this way for you, Senator: the circulation of the aircraft air levels is one issue in a normal operation. This goes to the maintenance of the aircraft that allows the oil to enter into the ducting system that is providing a higher concentration of fumes and misting within the aircraft that is having effect upon the bodies. They are two separate issues in my view.

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Senator FORSHAW—You referred to the McDonnell Douglas aircraft as well. What about other aircraft?

Mr L. Cox—There have been reports of fumes in other aircraft but those two aircraft, on the information that we have been receiving, are the two most common aircraft to receive complaints. I would have to hasten to add there that the 146 is even more so than the MD80.

Senator FORSHAW—Thank you.

CHAIR—I cannot find it in your submission now, but you made an analogy with the Gulf War syndrome. I was just wondering what your inference was there.

Mr L. Cox—The comparison that we drew there is that there had been an understanding or acceptance of effects occurring from the Gulf War. They are now becoming more common, to the extent that some countries are taking steps to investigate that. This is a similar sort of exercise. The accusations have been made that a lot of people are alleging things occur. Some of the same group of chemicals we understand were identified as causing a similar range of problems. I am sorry to be perhaps lighthearted about it but I heard it this morning and I cannot resist. The comment that people affected by fumes in this aircraft may have been affected by the usage of the oral contraceptive pill is absolutely ludicrous. There are 50-year-old male pilots affected by this situation who, I am pretty sure, do not take the oral contraceptive pill.

CHAIR—Are you absolutely certain?

Senator O'BRIEN—We can ask them.

Mr L. Cox—You can ask them but, for example, the pilot that was involved in the incident and became incapacitated was not a female pilot that takes the oral contraceptive pill. That is the sort of classic situation.

CHAIR—I thank you for your evidence. A copy of the *Hansard* will be made available as soon as possible.

Mr L. Cox—If we can find the overseas incident material, which I am sure we will, we will send that on. Similarly, on the standards that were raised about ASHRAE, we will also forward that on. In respect of the material that we tendered this morning, I note that some of this material is often privileged. Is there any objection to that being released publicly?

CHAIR—It is not now because we have approved it for release. I have one further question. Without naming any individuals, do you have any members, either individually or where the union is acting on their behalf, that currently have workers compensation claims or other claims against the airlines related to this issue?

Mr L. Cox—Yes. We have at least one directly involved at this point in time. There are others that perhaps have not been fully disclosed in the circumstances that they are in. That goes back to the effect on their careers who may or may not be affected by the fumes, which again comes back to whether you can pinpoint this in a black-and-white issue to the fumes problem.

CHAIR—Thanks again, Mr Cox.

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[12.19 p.m.]

PHILLIPS, Mr Clive Howard, (Private capacity)

CHAIR—Welcome. You have heard all the opening statements and you know about parliamentary privilege. Would you like to make an opening statement?

Mr Phillips—Yes. I appear here at the invitation of, and thankfully the expense of, your committee. I am an aircraft engineer and pilot and, until very recently, was the manager of the Melbourne field office of the Bureau of Air Safety Investigation. It was my office's responsibility to initiate the investigation into the incident that occurred on Thursday, 10 July 1997. I have listened to this morning's evidence and also read much of the previous evidence that has been given to you. I would just like to make a couple of comments. The first one is that British Aerospace's representative was at pains to say that the bureau's investigation had gone ahead without reference to British Aerospace. That is quite incorrect. Mr Love, who I believe is in the body of this room today, features quite regularly in my notes and my minutes for discussions and at meetings that we jointly convened and also attended in relation to the various issues that were brought up during this investigation. The files currently held by the Bureau of Air Safety Investigation and ATSB in Canberra have quite a body of evidence that was given, via faxes, telephone calls and emails, from British Aerospace specialists whom we spoke to at Woodforde in England. So I would like the committee to note that that part of the information was wrong.

Also, I was concerned this morning to hear Dr Loblay make the assertion that perhaps Captain Kolver and his compatriot pilot on that day suffered from mass hysteria. You will be talking, I believe, with Captain Kolver tomorrow morning. I would not have thought that Captain Kolver was a person who would suffer from that and I was a bit concerned to hear that part of Dr Loblay's evidence. Perhaps I heard it wrong, but it appeared to me that he was putting a lot of these symptoms down to mass hysteria. I would hate to think that our pilots, with many thousands of hours under their belts, could suffer from that in this way. They are the only two comments I wish to make at this moment.

CHAIR—All right. I would need to check the *Hansard* to be absolutely accurate on this but one of the claims that has been made is that, in relation to the BASI report on this incident which was tabled in the Senate – we have a copy of that; as I recall it is about a five-page report – there were significant amounts of the original report which were left out of the final report. As the author of the original report, is that so and can you give us some idea of what material was omitted?

Mr Phillips—With all of these investigations, particularly a large one like this, my method of proceeding is to initially put down a whole lot of headings and address each of those headings, and as the investigation proceeds those headings either get added to or deleted. My initial report draft did contain some 25 pages, from memory, that I had put together over the period of the investigation. When I finished with the bureau, of course I lost carriage of that data. The persons responsible to continue with the investigation and to complete the report did incorporate a considerable amount of what I had put in my draft report, but, yes, omitted large areas that they thought could easily be carried by one-liners or just referred to within the report, which has occurred.

CHAIR—It is a fairly significant reduction, though, from 25 pages to five.

Mr Phillips—That is correct.

CHAIR—Is there anything of material substance in your original report that you believe would have been better if it had been included in the final report?

Mr Phillips—Being the author of the report, I would love to have seen every word put in. But that does not occur.

CHAIR—As an author myself, I know that.

Mr Phillips—When you have to put it through the levels of scrutiny and management that there are within the bureaucracy, lots of things change. I probably would have liked to have seen more descriptors in there of some of the problems that some of the pilots and other crew members had described to us. I probably would have liked to have seen a little bit more on some of the work that had been done by the likes of Dr Loblay and also Dr Teo, and references to the vast amount of work that is out there. But the persons who had carriage of the report after I left obviously did not agree with that, but that is their wont.

CHAIR—We had the report at the hearings in Canberra –

Mr Phillips—I have a copy here.

CHAIR—I must say that CASA were fairly dismissive of that report. Have you read the transcript of that or are you aware of the fact that that report was fairly well dismissed by CASA and by some of the airlines involved?

Mr Phillips—They were dismissive of parts of it. They were dismissive of the recommendations, and that is their right, of course. CASA is an investigative body as well as a regulator, and they carry out their own

investigations and they invariably come to different conclusions to those that the bureau does, for different reasons. I would not have expected much different to what I saw, actually.

CHAIR—That might be another question in itself but I think Senator Crane might like to ask you that one.

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Senator CRANE—No. You ask the question for Senator Crane.

CHAIR—It is not directly related to this, but these inquiries tend to have a connection to one another. One of the things that we need to sort out is that this committee feels there is a confusion between the roles of the old BASI, CASA and Airservices. The federal department of transport would underline that, I think, and I wondered whether you have a comment on that.

Mr Phillips—It has to be my own personal view, of course.

CHAIR—These are all your personal views.

Mr Phillips—Thank you. The confusion between roles is most evident in the publications that the three organisations put out. They all put out their own safety publication except that the new ATSB has decided there will not be a BASI safety presentation. I think the safety education role is just one of the areas where there is confusion on who does what and how. You are absolutely right.

Senator CRANE—I have just a couple of questions on this, because Senator Woodley's comments are the same as some of mine. They are in terms of the basic reduction, I guess, in your original report to the final product. I understand these processes, but my question and my concern with regard to them is that I have an understanding, or have been led to believe, that in fact that occurred more because of the resistance of the other authorities – CASA and Airservices – rather than resistance in BASI. Do you have any information, or can you enlighten the committee at all on that? If you cannot answer that, I am not asking you to speculate.

Mr Phillips—No, I cannot answer that one because I do not know what report was submitted to the other organisations. I have no idea at all because it did not come to me. I was outside of the bureau at that stage. When I left the bureau the report was still in an internal draft stage, and I do not know what went to CASA and what went to the other organisations. I would be very surprised if anything other than what you see in the published report was sent to those organisations because they have only 28 or 60 days, depending on the process, to reply. I would not have thought a major rewrite of the report had occurred in the time frame between what I understand was presented to the operator and what was finally published. If we recall some of the CASA comments early in the piece, they had, only at that late time in November, I think, replied to some of the BASI comments, so I do not think there would have been a major rewrite in that period. I would have thought that it was reduced within the BASI organisation.

Senator CRANE—I understand your position in terms of this, but the fact is that, to reduce a report from 25 pages – which to me is not an excessive report even if it has a summary on it – to five pages, means that there was a very significant –

Mr Phillips—Slash and burn.

Senator CRANE—Yes. Even though you made the reference to one-liners, you cannot substitute everything with one-liners in terms of the background. Something happened in the process which was, I think, a bit more – and this is my view – than the BASI process itself.

Mr Phillips—No, I do not agree with that. The BASI process has many different standards of publication. I was working along the line that this major investigation, as it was, would result in a book type report complete with diagrams and photographs as you would get on the major investigations. After I left, the priority, I think, was to clean up all outstanding reports. Consequently it was reduced to being just a report that was published straight out of the computer rather than a book report, as we would have called it. That would have been one of the reasons why the report would have been reduced down, because the computer does not have the capacity to put photographs and diagrams in it. They would have cut a lot of that information out to enable the style of report that was finally approved and released.

CHAIR—You are not the only one.

Senator FORSHAW—I have not got my copy of the BASI report with me but you have, which is very handy. Firstly, in terms of the recommendation – I think there was a recommendation at the end of the report – maybe you could read that back to me just to refresh my memory.

Mr Phillips—Okay. The first recommendation says:

The Civil Aviation Safety Authority, in conjunction with the aircraft manufacturer, British Aerospace Plc, address deficiencies that permit the entry of fumes into the cockpit and cabin areas of the BAe146 aircraft. These deficiencies should be examined by the regulatory authority as part of its responsibilities for initial certification and continued airworthiness of the BAe146 aircraft.

Senator FORSHAW—And the next part of the recommendation?

Mr Phillips—The second recommendation states:

British Aerospace Plc liaise with the engine manufacturer AlliedSignal to investigate failures within the engine that result in fumes entering the cockpit and cabin areas of the BAe146 aircraft.

Senator FORSHAW—Putting aside the debate about a 25-page report as against the short document that you have got, do those recommendations reflect your findings and what you would have put forward?

Mr Phillips—The way this bureau's investigation system works is that the field officers would conduct the factual investigation and put together the analysis of what they had and then a specific area within the bureau in Canberra, the Safety Deficiency Section, would then go through and put together the recommendations that they would see come out of that. I did not work in that last area.

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Senator FORSHAW—That was the BASI recommendation.

Mr Phillips—For sure.

Senator FORSHAW—What I am trying to ascertain here is whether, in your view, that was sufficient. BASI was the body that was charged with investigating incidents and reporting and, generally, from my perspective, whilst I have not been involved in some of the more recent inquiries into the broader issues, it has a pretty good reputation for its attention to its charter. If they were the recommendations, that is what one would expect the airlines and the other parties to do. Was it sufficient in your view or should there have been something more?

Mr Phillips—My view is that I would like to have seen, but probably would not have achieved, some recommendations that asked for a competent body to examine the effects of fumes within the cabin – and that involves the front end as well as the back – and, also, the medical aspects of the evidence that has been presented to see whether a better system of introducing compressed air into the cabin can be achieved rather than taking the pressurisation from the engines themselves. In other words, I would have liked to see whether the oil and the pollutants are such a concern that really we should be looking down the track to new aircraft being produced without the air coming off the compressors, thereby removing the chance of pollutants getting into the cabin.

Senator FORSHAW—Can I take you to this other broader area of international experience, given that these planes are not just flown in Australia. What consideration was given in your investigation to experience around the world? You have just indicated what you thought might have been a more appropriate or more fulsome recommendation beyond what is in there. This was a slightly different sort of investigation from, say, investigating an incident where there might have been a near miss at Sydney airport. I recall in particular the problems with the operation of the cross-runways. So in this situation you were not so much looking just at something like that, but at the broader issue of cabin air quality.

Mr Phillips—That is right. This very quickly became a global issue, using the modern idiom, rather than just a National Jet problem. Very shortly after we became aware of this, I asked around on the Internet and through airline and union connections if anybody who had any concerns about the fumes, oil mist and fog, as it was determined that it was in aircraft, could please contact me. I was quite overwhelmed by the number of people who did. I was also overwhelmed by the number who wished to remain totally anonymous and did not want their names and phone numbers put on any files. There definitely seemed to be a reluctance to formally report these incidents, which is why we have said in this report that it is a very under-reported event and that we do not really have a handle on just how often these events occur and how often people, particularly the crews, do feel sick. Those that we do know of are very often not well received by their operators – and for very obvious reasons, of course. But we got that information not only from BAe146 operators, but also from MD80 operators quite regularly. There were a few from Airbus and Boeing, but predominantly the 146 and the MD80 were the two main aircraft that were brought to notice. We received information from, I think, 14 or 15 countries.

Senator FORSHAW—Finally, are you in a position to comment upon the response of the various companies, the airline and engine manufacturers and others, to the recommendations – whether or not they have carried them out and how successful they may have been?

Mr Phillips— I am not exactly sure when the report was released. It does not have a release date on it, unfortunately. No, I am not aware of the airlines' response, but I would like to say that during the –

Senator FORSHAW—To be fair, certainly, Ansett and BA gave us presentations that they were seeking to address these issues over a period of time. Indeed, Ansett said that they were probably the best in the world; that they were in front of other countries and other airlines in terms of what they were trying to do.

CHAIR—I think that is true.

Senator FORSHAW—That was the nature of their submission.

Mr Phillips—During the investigation, we found that the work that was being conducted by Ansett and their approach to the problem of this aeroplane was a bit unique. They had put together special committees. The amount of attention that they spent on this aircraft went way beyond its value within the fleet. It was obvious to me that they were concerned about the health and safety issue, regardless of what Dr Loblay was

saying this morning – and he is a very credible witness, of course – Ansett did have 60-odd staff members who had medical certificates saying that they should not fly in that particular aeroplane, and they obviously took those very seriously.

CHAIR—Sixty?

Mr Phillips—Yes. They obviously took those very seriously and were working within their own organisation but also with British Aerospace to carry out tests which did find a lot of deficiencies in the aircraft, and they are working to overcome those deficiencies to try and improve it.

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CHAIR—Do you know if there is a copy of the draft report, as you put it together – the 25 pages – available anywhere?

Mr Phillips—It was on the files that I sent to Canberra when I finished.

CHAIR—We would have to ask BASI?

Mr Phillips—You would need to ask BASI.

CHAIR—Okay, thank you.

Senator O'BRIEN—Mr Phillips, as I recall, there was some criticism made of the crew on the aircraft, the subject of your investigation, for not using their oxygen masks, which were available to them, unlike cabin crew, for example. Was that matter raised with you at all during the inquiry?

Mr Phillips—Yes, it was. I remember discussing it with Captain Kolver. With regard to the event when Captain Kolver realised that he had a problem, the time between that realisation and landing was two minutes, so there was not a lot of time for him to do anything other than to hand over and then attempt to monitor what was going on, of course, with the supernumerary pilot, who was sitting at his shoulder. I could not put a criticism on a pilot, two minutes out, even though he did not feel well and was most probably confused at just what was going on, for not whipping an oxygen mask on when he probably did not realise what the cause was anyway. His statement to me was that he did not realise what had happened until after they had got on the ground, and then they realised that there was a report that said there was a previous fume incident and he linked the bad smell on descent with his subsequent medical condition.

Senator O'BRIEN—Do you recall the period that elapsed between him noticing the smell and noticing the symptoms?

Mr Phillips—They were at 10,000 feet when they noticed the smell. If they were maintaining a normal descent from 10,000 metres in the Melbourne area, it would only be five, eight, 10 minutes probably. We have people here who operate that aircraft who would know.

Senator O'BRIEN—So there would be a time period of somewhere between five and 10 minutes?

Mr Phillips—Yes – you are not talking about half an hour from 10,000.

Senator O'BRIEN—During which there would have been, according to the material presented to you, a noticeable odour and the pilot would have noticed that he felt somewhat incapacitated?

Mr Phillips—Yes, exactly.

Senator O'BRIEN—Was there any information gleaned as to whether that noticeable odour coincided with any oil leak in the engines?

Mr Phillips—There is circumstantial evidence, of course, that previously they had reported that and they had found oil in the inlet and were aware that that engine was leaking. This crew was not aware of that, and when they became aware of it they then isolated that engine and the problem went away. Subsequently, the operator did remove the engine and fix it. So the circumstantial evidence was there that that was the source.

Senator O'BRIEN—But that was not established to your satisfaction?

Mr Phillips—Yes, I was quite happy that that was the only place where it would have come from because that aircraft then flew many sectors before it went back and had the engine changed.

Senator O'BRIEN—So you are satisfied there was an oil leak in one of the engines?

Mr Phillips—Absolutely. The operator established that there was. From that evidence, yes, I am quite happy.

Senator O'BRIEN—It was an aircraft being used for freight purposes?

Mr Phillips—Yes, it was.

Senator O'BRIEN—On that night?

Mr Phillips—Yes.

Senator O'BRIEN—Was it exclusively a freight aircraft?

Mr Phillips—You would need to ask the operator that. They are appearing this afternoon.

Senator O'BRIEN—Thank you.

CHAIR—I have a couple of tidy-up questions. We have dealt with the modifications that Ansett have made and we have had the opportunity of seeing a stripped down aircraft – they have gone to a lot of trouble to let us understand that. Do you know if any of the other operators, or BAe itself, have suggested that those modifications should be made, or have modifications been made by anyone except Ansett?

Mr Phillips—I could answer that only from my general knowledge of the situation, but you do have a British Aerospace representative here, and Qantas and National Jet, and I think they could tell you exactly where they are at rather than my just guessing.

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CHAIR—We will ask them that.

Mr Phillips—Yes. I think they would be the most appropriate people.

Senator O'BRIEN—Could I just ask one more question? Mr Phillips, do you know why there were three people on board that plane?

Mr Phillips—Yes. The operators regularly carry out surveillance of operations, and the third captain was on board just to run a surveillance, an audit, on how that flight was going. It was just circumstantial that he happened to be on board.

CHAIR—Any further questions? Thank you very much for your evidence. There will be a copy of the *Hansard* available fairly soon. We ask you to check that. There is a response from British Aerospace to some earlier evidence given and also a response or a letter from ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers. I table those and presume the committee has no objection to their being published.

Proceedings suspended from 12.48 p.m. to 1.48 p.m.

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COX, Mr David Henry, Group General Manager, Regional Airlines and Fleet Planning, Qantas

KITTO, Mr Neville, Manager, Government Affairs, Qantas

LIDBURY, Mr Paul Phillip, Technical Manager, Regional Airlines, Qantas

CHAIR—Welcome. Perhaps you would like to make an opening statement and then we will move to questions.

Mr D. Cox—The Qantas Group's regional airline operation consists of four wholly owned subsidiary airlines – Airlink, Eastern Australia, Southern Australia and Sunstate Airlines. In total, the Qantas Group utilises a fleet of approximately 44 aircraft, including a number of BAe146 aircraft to deliver a range of regional passenger services. The Qantas BAe146 fleet carries approximately 1.8 million passengers a year.

Airlink and Southern Australia airlines manage the BAe146 aircraft covering regional services. In the case of the Airlink services, an independent company, National Jet Systems, NJS, of Adelaide, is contracted by Airlink to provide all support functions needed to offer passenger services. NJS provides and manages the flight and cabin crews and NJS staff maintain and repair the aircraft. NJS holds the air operators certificate and is responsible to CASA for all operational regulatory requirements. NJS currently operates 13 BAe146 aircraft on Airlink's behalf with a 14th aircraft to be added later this year. In the case of Southern Australia Airlines, NJS staff maintain and repair the Southern BAe146 fleet through a contract. Southern staff and crew operate the aircraft with Southern holding the air operator certificate. Southern operates two BAe146 aircraft with a third being added within the next few months.

Although NJS is the CASA approved air operators certificate holder or nominated maintenance controller for the Qantas regional BAe146 aircraft, Qantas nonetheless upholds a fundamental obligation for the safe and reliable operation of the aircraft. To meet this obligation, Qantas does a number of things. The contract between Airlink/Qantas and NJS includes certain performance obligations in the areas of engineering and maintenance safety and passenger comfort. The required levels of performance are in line with Qantas mainline operation. The Qantas engineering and maintenance quality assurance department conducts audits of the NJS engineering division in exactly the same manner as it audits the Qantas engineering division. A copy of each audit report is sent to me, as responsible Qantas executive, and also to the CASA head office in Melbourne.

NJS is also a formal part of the Qantas flight operations audit program that encompasses an ongoing review of all safety systems. Rigorous field audits by a Qantas team are conducted biannually as part of this program. A copy of each report is sent to me and the Qantas chief pilot. All air safety incident reports submitted to the ATSB, formerly BASI, involving NJS are copied to the Qantas safety department for evaluation. The Qantas safety department overviews these reports and includes any in the routine safety report to the Qantas board if appropriate. As a final measure, Qantas employs a full-time technical manager to monitor on a daily basis all aspects of the 146 operation, and that is Mr Lidbury to my right.

On the specific subject of cabin air quality, since the commencement of operations in 1991, the Qantas BAe146 fleet has experienced very few problems with the quality of air in the cabin of its aircraft. Records show that prior to 1996-97, there were very few passenger or crew complaints relating to engine fumes contaminating the cabin air supply. This could be due to a number of factors. Airlink does not operate the ALF502 powered BAe146-300 aircraft that has been the principal subject of complaint amongst other operators. Airlink has always operated its aircraft at the lower end of the performance scale, resulting in lower engine operating temperatures and Airlink has applied the engine manufacturer's recommended procedures when the aircraft engines are overhauled, and this includes such things as replacing bearing seals at each overhaul rather than re-using components.

Since 1996-97, the number of cabin air quality reports has increased. We believe this is due mainly to the greater awareness of the issue amongst passengers and crew. Even so, in 1999, less than 0.12 per cent of all BAe146 flights resulted in a cabin air quality crew report, and that is approximately one report in every 785 flights.

During the period since 1996-97, Qantas has taken a number of initiatives to satisfy both management and staff that the aircraft cabin environment is safe. Firstly, the various documents and reports produced by manufacturers, doctors, academics, airlines and individuals have been evaluated by Qantas staff. It is the view of Qantas that the information available in these documents demonstrates that the level of contaminants found in the BAe146 cabin environment are well below health authority standards.

Secondly, in December 1998 an independent expert, Australian Environmental Health Services Pty Ltd, tested the cabin air of a Southern 146 that had a confirmed engine oil leak defect. The test was conducted with the aircraft doors closed, all engines operating and the cabin airconditioning system adjusted to maximum flow and temperature for a period of 30 minutes. In other words, it was a worst case scenario. Results of this test show that contaminants found in the cabin air were well below Worksafe Australia environmental exposure standards. Results of this test were given to the Southern Occupational Health and Safety Committee. That

committee includes a number of staff representing engineers, pilots and cabin crew from the Southern operation.

Thirdly, although all tests indicate that the cabin environment is safe, Qantas has worked closely with NJS to ensure that appropriate cabin air monitoring, maintenance and rectification procedures are in place. Fourthly, Qantas has ensured that all beneficial engine and APU modifications have been incorporated promptly. As an example, all the Qantas BAe146 aircraft had the original and older technology Garrett APUs replaced by new technology Sundstrand units.

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Fifthly, although not directly related to the issue of 'contaminated' cabin air, Qantas and NJS have implemented a program of interior modifications that will improve the air circulation within the passenger cabin. These are the same modifications being implemented by Ansett. Finally, through direct meetings with CASA, Qantas has obtained confirmation that the BAe146 aircraft meets all Australian certification requirements for cabin air. Thank you.

CHAIR—Are there any other comments? Senator O'Brien, are you ready to open the bowling?

Senator O'BRIEN—Yes – new ball! With regard to your statistics, the reporting of incidents on the 13 aircraft currently in the NJS Southern fleet amounts to approximately one report a week, doesn't it?

Mr D. Cox—It is 0.12 per cent of 400 flights.

Senator O'BRIEN—About eight flights a day per aircraft, so that is –

Mr D. Cox—Once a fortnight. We do about 400 a week, I think.

Senator O'BRIEN—On those particular aircraft?

Mr D. Cox—Yes.

Senator O'BRIEN—So they are averaging about four flights a day each?

Mr Lidbury—About 450 flights per week on average.

Senator O'BRIEN—So it is a bit more than a week, a bit less than a fortnight?

Mr Lidbury—Yes.

Senator O'BRIEN—How many of the 13 aircraft have been the subject of reports? Have you got that information? Does it spread across all of them or are there particular ones?

Mr Lidbury—Correct – it varies across the fleet. We do have the information on which aircraft are involved.

Senator O'BRIEN—It would be interesting to know whether it is common to all aircraft or whether there are particular problem aircraft in your fleet. Would you be able to tell us that?

Mr Lidbury—Generally speaking, it varies across the fleet. Over the period, let us say, of the last two or three years, not all but most of the fleet have experienced some sort of a report. It is not one aircraft.

Senator O'BRIEN—Can you tell us how many of those reports coincide with oil leaks in the engine?

Mr D. Cox—We would have to research that.

Senator O'BRIEN—Has the experience of NJS been, to your knowledge at least, of problems with the oil seals in the engine?

Mr D. Cox—There have been oil seal leaks, yes, and there will be instances in that data, including engine shutdowns. But we would have to research that and provide you a breakdown of the data along those lines. We would be happy to provide that.

Senator O'BRIEN—My attention has been drawn to problems with one of the two aircraft operated by Southern in the state of Tasmania. I am not sure what its registered identification is, but I know it is called the *City of Hobart*; you do not change the names of planes. It would be interesting if you could advise us whether that has been the subject of reports which might or might not coincide with the breakdowns. I say that because my staff and other people have been inconvenienced by cancellation of flights by that particular aircraft.

Mr D. Cox—I can confirm that Southern aircraft have experienced reports of cabin fumes, and, yes, I can confirm that some of those would be related to engine oil leaks, et cetera. They are part of the data.

Senator O'BRIEN—NJS supply the aircraft. Do they choose which aircraft go to Southern, or is there some involvement of Qantas in it?

Mr D. Cox—There is an Airlink fleet and there is a Southern fleet. There are, on occasions, exchanges between them when, for example, Southern with only two aircraft – and to call it a fleet is probably –

Senator O'BRIEN—Two to become three.

Mr D. Cox—Say one of those aircraft has to be taken out for maintenance, then an Airlink aircraft might be substituted for a short period.

Senator O'BRIEN—I was presuming that, for example, the *City of Hobart* is one which is dedicated.

Mr D. Cox—It would generally be found operating in the Southern network.

Senator O'BRIEN—Your submission says that NJS and Qantas will implement several of the Ansett modifications. You did not use the word 'several' in your submission, Mr Cox. Does that mean you have decided to implement all of the modifications that Ansett is implementing?

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Mr D. Cox—The cabin interior modifications? Yes, we are implementing all of them.

Senator O'BRIEN—The ducting modifications that Ansett is performing.

Mr D. Cox—That is right.

Senator O'BRIEN—What is the time scale to complete that?

Mr Lidbury—We commenced the program in roughly November last year, and we expect it to be complete about October this year. We have completed, I believe, about three aircraft at this stage.

Senator O'BRIEN—As I understand it, British Aerospace are no longer making the 146 aircraft. That is what they have told us.

Mr D. Cox—That is true. They make a derivative of that aircraft. It is the RJ series of aircraft. They have on the drawing board a further derivative – an RJX. That is the normal process that an aircraft would go through in its life and development.

Senator O'BRIEN—Is the additional aircraft that has been added to the current 13 from another service somewhere, or is that a new aircraft – one of the RJ aircraft?

Mr D. Cox—It is a new aircraft for the Qantas fleet. It will be a 146 aircraft.

Senator O'BRIEN—It is not a fleet?

Mr D. Cox—It is from outside the Qantas fleet.

Senator O'BRIEN—So it is a 146 which has been flying for another fleet somewhere?

Mr D. Cox—Correct.

Senator O'BRIEN—Will that be modified before you put it in service?

Mr Lidbury—We will be carrying out some modifications such as replacement of the APU; we will be putting the new sundstrand APU in place. That aircraft will then fit into the current program for the cabin interior circulation. So it will not be before circulation.

Senator O'BRIEN—Are you aware – and I am sure you are – of the CASA certification process to determine that the aircraft complies with the required standards and is certified to operate in Australian airspace by RPT carriers such as yourselves? There has been a suggestion that perhaps an aspect of the requirements in relation to the BAe146 has not been met, particularly with regard to cabin air quality. Have you any information you can assist the committee with in relation to that matter?

Mr D. Cox—CASA themselves have delivered a fairly unequivocal reaffirmation of the airworthiness of that aircraft, and we have ensured that we comply with all the requirements that CASA laid down. I really think it would not be fair for us to comment on more than that. We would then be commenting on our regulator.

Senator O'BRIEN—What involvement does Qantas have in the relationship between the cabin crew and flight crew of NJS and that of Southern? Am I correct in understanding that the relationship is between them and not with Qantas?

Mr D. Cox—As I said in my opening remarks, the relationship with NJS is a contractual one. They employ the staff and they hold all the regulatory requirements that go with that. Our oversight of them is through a process of audit and through the contract that we have with its performance guarantees in all indicators, including engineering and maintenance, reliability, safety and a range of other factors, to ensure that the operation is a sound one and meets our criteria.

With Southern it is a bit different. We have a maintenance contract with NJS, which is exactly the same sort of thing as we do with Airlink, and it is monitored through the same procedures. The tech and cabin crew are Southern employees and their monitoring is as you would do for your own subsidiaries. The net effect of all structures is that there is an audit and a monitoring process in place and, as I listed in my opening remarks, feedback mechanisms such as board safety reports to ensure that the quality we think we are getting is what we are in fact getting.

Senator O'BRIEN—One issue which has been raised with us is how an operator would react to reports by flight crew of problems with the aircraft which might be to do with cabin odour. I was asking those questions to understand whether Qantas can answer on behalf of NJS and Southern or whether Southern would need to answer those questions.

Mr D. Cox—With regard to Southern, as a wholly owned subsidiary of Qantas, we would carry that ultimate responsibility, although we would perhaps have to refer to our contractor, the maintenance organisation NJS, in certain details. But we would also probably be drawing on the manufacturer of both the airframe and the engine, so it is a cooperative effort in that regard.

Senator O'BRIEN—There has been a suggestion that NJS has been – I am trying to think carefully how I should put this – not as sympathetic as Ansett in relation to reporting of incidents. I think we had that evidence just before lunch from the Federation of Air Pilots. If I understand you correctly, we would need to speak with NJS about that matter.

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Mr D. Cox—They are on next, and I am sure they would welcome the opportunity to contest the view that they have sat on their hands, which I think was the suggestion. From my own personal experience – and I have been with regional airlines since December the year before last – I have seen no evidence of that whatsoever. Quite the contrary, they have got on with the job, quietly and effectively, of introducing a range of initiatives in the reliability area particularly, in terms of monitoring and crew procedures. I think the evidence is in the reporting of incidents that they have suffered, which has been of a lower level by comparison.

Senator O'BRIEN—Is there a career path for crew going through NJS or Southern into the Qantas fleet?

Mr D. Cox—Not a formal career path. People will take jobs from here and there and cross back and forth, but on the tech crew side, no, there is not. On the cabin crew side, with our own subsidiaries there is a process where people will move from the regionals into the core airline.

Senator CRANE—You said in your answers to Senator O'Brien that there is a complaint or a report of unsatisfactory air in the cabin at the rate of one every week or two, or every seven or eight days. Do you or your subsidiaries currently have any employees off work as a result of these complaints?

Mr D. Cox—I am not aware of any in Southern. I think there was one in NJS.

Mr Lidbury—There are no employees within Southern that are currently off sick due to that issue.

Senator CRANE—What about the past history? Have you had many?

Mr D. Cox—Very few.

Mr Lidbury—Southern have been operating the 146 since late 1996. To date, we are not aware of any occurrences of sickness and claims et cetera due to that issue of cabin air quality.

Senator CRANE—What about with the others?

Mr D. Cox—With NJS, I think the one that is current is about it.

Mr Lidbury—There may be one or two incidences, but I think they would have the details.

Senator CRANE—Thank you. Do you have any on workers' compensation as a result of any of these complaints? Obviously, there has been no legal action concerning that coming out. You mentioned the modifications and repairs that you had been carrying out. Are they similar to those that Ansett are doing?

Mr D. Cox—The modifications we are putting in?

Senator CRANE—Yes, the modifications. Are they are the same as those that Ansett are doing?

Mr D. Cox—They are identical. The manufacturer will prepare a service that will lay out the process of how to incorporate the parts. All operators who want to incorporate that will just follow that same procedure.

Senator CRANE—I think that concludes my questions.

Senator FORSHAW—The things I wanted to raise have already been addressed, but I do have one question. The focus has been on the BAe146 and there has been mention of their McDonnell Douglas 80. Are there any other aircraft, that either Qantas or its subsidiaries fly, that you are aware from other airline operations around the world as having a similar problem to this, or is this something unique?

Mr D. Cox—We have all read the submissions which talk about the MD80 and the 146. But, from a Qantas experience, there is no evidence within the rest of the fleet of any issue. At a worldwide level, beyond the isolated incidences identified in those submissions, I am not aware of any other aircraft types or situations which would lead to an issue.

Senator FORSHAW—That is other aircraft. In terms of the international experience, you gave some figures to Senator O'Brien for the BAe146 which have not been clarified about the frequency of reports or incidences. What about the operation of this aircraft elsewhere? Is it more frequent in Australia?

Mr D. Cox—I guess I am loath to speculate without data. The anecdotal evidence that I have seen suggests that elsewhere the 146 is not perceived as the issue that perhaps it is in Australia.

Senator FORSHAW—I thought I did not have any questions except for this one, but that is an interesting point. Despite what we know about some of the deficiencies that occur in regulation from time to time, this is an industry where one would hope that the absence of any significant reporting would demonstrate that there is

not a problem, or it is a manageable problem, rather than there being a significant universal problem not showing up elsewhere.

Mr D. Cox—It is not to say that there have not been incidences with the 146 in other parts of the world. The van Netten work, for example, indicated that there was an issue that he was pursuing.

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Senator FORSHAW—Your company would be concerned, surely, if there were.

Mr D. Cox—Absolutely.

Senator FORSHAW—Given that you have to take account of what everyone else is doing, in the same way, as I think I referred to earlier, that happened many years ago when there were a number of DC10s that crashed – this is a hazy recollection, but I remember it – and eventually DC10s around the world were grounded until the issue was pursued. Am I correct in that?

Mr D. Cox—I think the best way to answer that question is to say that Qantas will always be plugged in to other operator experience, and that will be conveyed to all operators, through the manufacturers' normal procedures, regardless of the safety incident. That is a normal part of the safety process in airlines. The information that we are receiving back through those mechanisms is consistent with our experience here in Australia, that is, the aircraft is safe for operation, there is no international pressure or incidents occurring that would lead us to believe that we are missing something – quite the contrary; and those would then give us some comfort that the modifications that we have incorporated have successfully managed the issue.

Senator FORSHAW—There have been suggestions made, both in the written submissions and also in some of the presentations, and we heard this from the airline pilots association this morning and other people have suggested this, that there may be some independent body or group of experts – I am not sure how one categorises this yet – and that may be part of the recommendations or findings of this committee could be that there be a further in-depth study of this. Do you have any comment about that? I am wondering who might do that if that was possible, and, secondly, your company's role – would you cooperate in that?

Mr D. Cox—Absolutely. We would cooperate, as we have cooperated in every step of the investigation of this issue within Australia. I think you can break the problem in front of you down into several aspects. There is the flight safety aspect, and I think the body of evidence is beginning to converge on what is certainly our opinion, that that is not an issue. Then there is the short-term health effect. Again, the body of opinion seems to be converging that that dissipates fairly rapidly. And then there is the long-term occupational health and safety aspect. On the latter, there may well be some grounds for further investigation, and we would certainly support that and cooperate. However, the thrust of our opening remarks was to demonstrate that we have fairly exhaustively used all the avenues that are open to us in this particular instance, or in any normal incidents of a cabin air quality issue, and run them pretty well to ground. So I am a bit at a loss to know who else we could drag into this; we have really run the gamut of available options.

Senator FORSHAW—It is quite obvious that we are not experts up here, but there has been mention of this Mobil jet oil – is there any alternative to that? The people at Mobil might jump on me, but we will hear from them later. Is there an alternative oil available?

Mr D. Cox—There is. It is called Mobil 291.

Senator FORSHAW—That is okay then. It is a serious question.

Mr D. Cox—It is a good question, because that is evidence of the proactive nature of the way people have approached this problem. But I am sure from the evidence that you have already seen that the regulatory process that you go through to clear something new to introduce into the aircraft is a very systematic and exhaustive one, and it takes time. That process is under way on Mobil 291. The indications we have to date are positive, that it will address some of the issues that have been highlighted. I would expect that we will be seriously considering introduction of that as soon as it is cleared, and that is very soon now.

Senator FORSHAW—Has this been dealt with anywhere else in the other inquiries?

CHAIR—No.

Senator FORSHAW—What is the benefit of Mobil 291 compared to this?

Mr D. Cox—The elimination of the ingredients that –

Senator FORSHAW—That are reputed to have caused the problem?

Mr D. Cox—Yes.

CHAIR—I think you might have partly answered my first question, but you commissioned your own study of the BAe146, didn't you?

Mr D. Cox—That is right.

CHAIR—And you found chemical components that were within the Worksafe limits?

Mr D. Cox—Correct.

CHAIR—What further chemical components?

Mr D. Cox—I do not have that with me.

Mr Lidbury—It was the TCP, as you have heard in evidence before.

CHAIR—So it was that particular –

Mr Lidbury—Correct.

CHAIR—But it fits within Worksafe limits. Can you talk to us about that standard? We are laymen here.

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Mr Lidbury—No problem. Worksafe have adopted a standard. It is 0.1 of a milligram per cubic metre of air which applies, in their view, to a safe limit that can be breathed by a working person eight hours a day, five days per week. What we found in our study, which we referred to in our opening remarks, was about eight times less than that. So that was 0.013 in the report. In fact, that was the total TCP element. There are three isomers of TCP, and there is some debate as to whether all of the product is, in effect, neurotoxic. So that would have been the maximum within our study.

CHAIR—Was the study done on aircraft in the air in relation to incidents or what?

Mr Lidbury—It was actually a result of several questions from our occupational health and safety committee within Southern. We chose an aircraft that had a known engine leak. The aircraft was put on the ground and, as described, all the doors were locked and engines run, including the engine with the leak, and there was maximum air temperature, maximum flow – which you would not normally do during cruise – for 30 minutes.

CHAIR—That was what you described once before?

Mr Lidbury—Yes.

CHAIR—Sorry. My apologies for that. So you actually were able to identify any chemical compounds you found with the oil leak?

Mr Lidbury—We know what was contained within the air in the cabin during that test. We know basically what is contained within the oil. We knew that there was an engine leak on that aircraft, so we were testing how much of that entered the cabin through the normal airconditioning system.

Mr D. Cox—I think it is fair to point out, as we did in our opening remarks, that that was an extreme case sustained for 30 minutes. It is not something that you would permit to go on for that length of time in normal service. It was really to test the outer bounds of what could occur.

CHAIR—Good. I am sure you would be disappointed if I did not ask you about what happened on the Airlink flight just a week or so ago, when the BAe was forced to return from Gove to Darwin when the cabin apparently was filled with fumes. It is not the same issue, but I wonder if you can give us just an overview of that incident. What have you found so far? What was the cause of it?

Mr D. Cox—It was a failure of an engine bearing and the engine was shut down very rapidly. I think the air regenerates or recirculates through the cabin 16 times an hour. So it would have very rapidly cleared whatever was in the cabin.

CHAIR—It came in through the airconditioning system?

Mr D. Cox—Correct.

CHAIR—We saw one of the aircraft stripped down. Ansett showed us so that we had a fair idea of how the system works. It was helpful. Have you had any medical issues arise from that since the incident?

Mr D. Cox—From that incident, no. I think it is fair to say that what people have learnt over the last years is that, when an incident like that occurs, the crew will very rapidly isolate the problem air supply. There are procedures in place for them to isolate which engine – if it is not obvious from some other parameter of the engine – and shut the engine down very quickly to eliminate any air flow into the cabin. People are very conscious of that.

CHAIR—I think you said you operate 13 BAe146s.

Mr D. Cox—We have got 13 in Airlink and two in Southern.

CHAIR—And three of those have been modified?

Mr Lidbury—If you are talking about the air circulation modifications, yes.

CHAIR—Yes.

Mr Lidbury—Three to date and there will be program completion towards the end of this year in October.

CHAIR—Thanks.

Senator CRANE—First of all I would like to go back to one of Senator Woodley's questions. In terms of the aircraft you tested at the outer limits and what have you, have there been any complaints about that plane as a result of that oil leak? Or did you just test that because it had an oil leak and it was a good one to do a test on?

Mr Lidbury—We were receiving reports of odours on that aircraft. We confirmed that there was a seal leaking; therefore we targeted that aircraft to carry out the study.

Senator CRANE—So what you are telling us is that there could be an oil leak and there could be an odour, but it came well within the safety limits even though it was there?

Mr Lidbury—In terms of the leakage rate within the engine, that is correct.

Senator CRANE—You had complaints?

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Mr Lidbury—Yes.

Senator CRANE—You chose that one to test, I presume, because of the complaints and it was, if you like, a good example of a breakdown.

Mr Lidbury—It identified a known leaking engine, yes.

Senator CRANE—But even with that test, it was still within the accepted safety standards?

Mr Lidbury—It was eight times less than the Worksafe standard.

Senator CRANE—Yes, I picked that up. You may choose not to answer this question. Have you got any explanation at all as to why what appears to be the ratio of complaints against your operation vis-a-vis Ansett is so much less – or, should I say, better? I am sure you know what I mean.

Mr D. Cox—In some of our opening remarks we talked about the things that we have done: the reliability modifications that were put in place and the communication aspects with the crew. The instance that you picked up on there in terms of odour complaints is the critical thing. If you get an odour complaint you need to get maintenance activity onto it very quickly and make sure that mechanism works. It would seem from the evidence we have in front of us that those strategies have been successful, and we continue to work to improve them.

Senator CRANE—The air pilots association appeared not long ago. They made the point that they thought there were a number of complaints which were not being lodged because the crews and the cabin staff were concerned about reporting them. People do not want to identify themselves in terms of that. Do you have some system by which they can lodge a complaint whereby they are not identified, so that they can remain anonymous?

Mr D. Cox—Absolutely. The Qantas safety culture and the Qantas safety procedures apply within NJS and within the subsidiaries. That includes what is known as the CAIR system, which is a confidential reporting procedure that is available to all crew – all employees in fact.

Mr Kitto—No blame.

Mr D. Cox—It is a no blame approach and totally confidential. The only other thing you can add is that if someone suspects they have an issue, really they are obliged to report that. We would support them in that.

Senator CRANE—I am sure you heard me say this morning that I have flown a lot in BAe146s. Why is there this much greater problem for the crew than for the passengers? It is like cigar smoking: you are not smoking but you are breathing the same air. Do have any comment to make on why?

Mr Lidbury—Our evidence of reports from Southern is that we do receive passenger complaints as well as crew complaints. The evidence that we have actually supports it. Certainly our level of reporting is very similar in both passengers and crew, regardless of the fact that we carry about 1.8 million passengers. Certainly the evidence we have is from passengers as well as crew.

Mr D. Cox—Those are odour complaints. I think your question, Senator, was getting more to symptoms and long-term health effects.

Senator CRANE—If you like, both. I was really looking at the complaints but also symptoms and going further. Is there any differentiation there or is it fairly consistent? What do you do, for example, if a passenger complains about feeling off and nauseous, or whatever the symptoms might be? What action do you take as a company to treat that particular passenger?

Mr D. Cox—The first thing we do is check the aircraft and make sure that there was no evidence of an oil leak. If there were, we would obviously address it. As I said, the very first odour complaint that you get is the first clue that there may be an issue with the aircraft that needs to be addressed and it would be followed up just as seriously as if a crew member identified it. From the point of view of the passenger, I am not aware of any that have gone beyond writing to us and saying, 'There was a bit of a smell on your aeroplane.' We would write back and say either, 'We've investigated and there was no evidence,' or 'Yes, we followed it up and we found an oil leak and it has now been fixed.' That, in my experience, has been the end of it.

Senator CRANE—In the pilots association summary of actions needed, at 14.1 which I quoted before, it says:

Independent review of issue by outside experts, fully disassociated from the airline industry, given appropriate resources to: review air quality, hazardous substances in the workplace, current science/medicine, recognising extent of crew health symptoms reported.

Have you got a comment to make on that recommendation? Would you support it? Do you think it is necessary?

Mr D. Cox—Certainly that option was available to CASA and remains available to CASA. They would retain whatever expert opinion totally divorced from commercial impact if they saw an issue. I think the Ansett expert panel was an attempt to put together a group of people who represented a broad range of backgrounds and experience in a disinterested way. More than that, as I said to Senator Forshaw, I am at a bit of a loss to see who else we could drag in on this.

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Senator CRANE—I heard your answer to Senator Forshaw. That is why I asked the follow-up on that particular one. If that was possible, you would not resist it?

Mr D. Cox—In terms of any recommendation, we will obviously cooperate fully. We are not trying to hide anything here; we just want to understand as well as you do what the issues are.

Senator CRANE—Mr Kitto, you shook your head; I presume that meant no?

Mr Kitto—All I meant to indicate was that we would obviously cooperate with any further investigation that might come out of this committee hearing.

Senator CRANE—I know what you mean. The reason I asked that is that it does not get picked up by Hansard.

CHAIR—Thank you for your evidence. The *Hansard* record will be available soon and we would ask you to check that carefully.

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[2.31 p.m.]

LODGE, Mr Barry Stewart, Consultant, National Jet Systems Pty Ltd**NOTTAGE, Mr Peter Wayne, Executive Director, National Jet Systems Pty Ltd****SIEBERT, Captain John Anthony, Group General Manager, Aircraft Safety and Regulation, National Jet Systems Pty Ltd****SNOOK, Mr Christopher Anthony, Technical Services Manager, National Jet Systems Pty Ltd**

ACTING CHAIRMAN (Senator Crane)—I welcome the representatives of National Jet Systems here today. Thank you for your appearance and we look forward to hearing from you. I now invite you to make an opening statement. We do have a submission from you, which we appreciate. You do not have to read it. Just summarise that and any other additions you want to make to it and then I am sure committee members would like to address some questions to you.

Capt. Siebert—Thank you, Mr Chairman, for the opportunity to appear today and participate in this important inquiry. In these opening remarks I would like to give you an overview of how the National Jet Systems group fits into the air transportation infrastructure in Australia, provide some more information about the night freighter incident in Melbourne, and, finally, make some comments on some of the issues raised during the hearings in Canberra.

The NJS group provides contract aviation services to government, as in the Coastwatch surveillance operation; to the resource sector companies, with fly-in, fly-out air services to various mine sites; to Airlink, which is the largest Qantas regional airline; and, finally, to Australian Air Express for night freight operations.

To do this, we operate a fleet of 19 BAe146/RJ aeroplanes, 10 de Havilland Dash 8s and 10 light aircraft. The 146 operates from the Cocos and Christmas Islands in the west, up to Indonesia in the north, and throughout the eastern seaboard. The provision of air services to regional Australia is the core business of Airlink and, as the recent aviation gasoline contamination situation has shown, these regional air services are vital to the rural economy. Nearly 1,000 employees, mainly in operational and engineering support roles, are in the group. Over 1.1 million passengers are carried each year in the 146 fleet. Like our colleagues at Qantas and Ansett, NJS are committed to a safety first policy, and we have worked closely with them on this issue of BAe146 cabin air quality.

The 146 has proven to be an ideal aircraft to service the rural ports, and we believe that wherever a passenger boards a 146 they can be assured that the highest maintenance and safety standards have been adhered to. It was stated in the written submission that NJS believes that the concerns of air crew employees about the long-term health effects of flying in the 146 will form the core issue for consideration by the committee. The vast amount of material on the subject will require considerable analysis, and the report to the Senate will be an important benchmark document on Australian attitudes to the issue of cabin air quality.

The NJS engineering, safety and flight operations departments have worked closely together to generate an open and informed dialogue with our staff on this vital issue. Base visits for briefings were conducted in late 1997 by my colleague Mr Lodge and again mid-last year by me – that is to every base that operates the 146. I keep the NJS pilot group fully informed on developments at their quarterly committee meetings. Similarly, the senior base flight attendants and pilots are briefed during their management meetings. They occur twice per year down in Adelaide. My safety department administers the OH&S reporting, education and investigation functions as well as those functions for the aviation safety program.

The assertion by Associate Professor Winder at page 6 of the *Hansard* record of the evidence to this committee is absolutely untrue. He stated:

... successful occupational health and safety management is a formalised system of open commitment, clear consultative mechanisms, systems for the identification and control of workplace hazards and risks and review of occupational health and safety procedures. These do not appear to be systems used by the airlines.

He went on to say:

Staff have been bullied and have been victimised.

This is clearly untrue. The OH&S program is formalised and is supported by the managing director and the board. Additionally, staff across the NJS group support the program, as evidenced by the flow of reports from every corner of the operation. I could expand on the reporting system during the question period – and that came out during the Qantas discussion as well. I can go into that in more detail.

Professor Winder's statement that staff are being bullied and victimised is quite unfounded. He certainly has never verified the NJS OH&S program. As an aside, Mr Cox commented that there had been unfair pressure on some pilots who are members of his industrial organisation who have gone sick during mid-tour of duty. This is completely unfounded; I have checked on that. We have actually had two cases of pilots going sick

without a clear explanation, and they were investigated by a flight operations manager. There was certainly no commercial pressure, or any other sort of pressure, applied to those two instances.

To update the committee on the progress of our efforts to improve the quality of the cabin air in the 146, I can report that all of the engines have now been modified with new and improved bearing oil seals. Modifications are being incorporated into the distribution pipes, which will improve the cabin air circulation patterns. Those are the pipes that I understand the senators had a look at in Brisbane. They are exactly the same as the ones going into our fleet. These modifications are part of an ongoing process that applies to all areas of the aircraft. Operating procedures have been adjusted so that descents are flown with engine thrust levels at above flight idle. In addition, the APU air supply is selected at a late stage during the approach to landing. Both of these measures have proved to be quite beneficial.

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A major leap forward in the reliability of the engine oil seals can be identified as a result of the Allied Signal, which is now Honeywell, XRP extended reliability program for the engines, and the decision by NJS to send the engines back to the manufacturer's Phoenix Arizona facility for all the overhauls. During the overhauls all of the bearing oil seals are replaced by new parts rather than being reinstalled after the existing seals have been inspected. This procedure was part of the specific NJS scope of work. Mr Snook will be able to provide additional information on that during question time.

Turning now to the NJF, the November Juliet Foxtrot as they say in the flying side of it, I would like to add to the details contained in the BASI investigation and the media release made by the chairman on the night freighter incident that has attracted so much attention to this inquiry. The crew of the aircraft was one of our most senior BAe146 pilots as the captain. A senior BAe146 pilot was the first officer and a senior check captain in the jump seat as a quality assurance observer. There were some questions about that in the Canberra hearings, as you would recall.

The captain, because of some cockpit air contamination, suffered vertigo and handed control of the aeroplane to the first officer. The first officer did not smell any contaminated air and the check captain in his initial report stated that he had detected an odour but that he was not affected by it.

ACTING CHAIR—You just said vertigo. What is that?

Capt. Siebert—Dizziness basically, Senator Crane. The Chairman, who is absent, had some questions directed to Mr Toller. Those are at page 47 of *Hansard*. He expressed concern that two of the three pilots were incapacitated. This was not the case. The captain became ill but was still able to formally hand control of the aeroplane to the first officer in accordance with our standard handover and takeover procedures. The check captain in the jump seat was not affected.

This variation of reaction between each of the pilots formed the basis of much of the NJS criticism of the BASI report. The BASI investigation failed to address the aviation medicine aspects of the incident. Indeed, in our view, the conduct of the investigation and the conclusions drawn from the available evidence are flawed. Indeed, as an aside, the reduction of the initial draft report from 25 pages to the actual text of the report comes to 2½ pages.

The maintenance procedures detailed in the BASI investigation report were incorrect with respect to the airconditioning units. Furthermore, the draft report opined that there was a design deficiency in the air bleed and airconditioning systems. This clearly influenced the safety action. This calls into question the airworthiness of the BAe146. Part of the safety actions that came out about the second one was the manufacturer's work with the various authorities to look into incidents. That is already under way and I could expand upon that during question time as well.

During the interested party process, BASI reworded the conclusion on the air bleed system – however, the safety action remained unchanged. NJS is in agreement with the CASA assessment reported to the committee during the Canberra hearings that the BAe146 meets all airworthiness regulatory requirements. There was no flight safety compromised during the night freighter incident as existing procedures acted to control the hazard. Although NJS disagrees with airworthiness findings of this particular incident, it must be stated that we have an excellent relationship with the ATSB and have provided detailed reports on a number of incidents to them. My investigators are currently looking into the engine failure incident in Darwin that received considerable media attention. That was touched on during the Qantas evidence. That investigation is ongoing and in conjunction with the ATSB.

Returning to the direction of the evidence put before the committee to date, it appears that the issue of the air quality liners is perhaps now a public health issue rather than an aviation safety matter. The evidence presented on 1 and 2 November supports the NJS view that the incidence of air contamination in a category that generates an ATSB air safety incident report is very low.

CASA reported that the quality of air in the BAe146 was assessed as better than in many other aircraft. That is at page 3 of the CASA written submission. The ATSB evidence of the number of incidents involved in the 146, which was 12 compared to 31 Boeing 737 and 22 Boeing 767 since 1991, places the aeroplane generally

in the same category as the Boeing 747. This is not to deny the issues of the airflow patterns in the cabin which are addressed by the modifications to the toilet extraction system and the air delivery pipes.

Any crew report that mentions contaminated air in the cabin is data based. As there are nearly 30,000 flights per year, there is some sort of contamination reported at a very low figure of 0.1 per cent, and that was touched on earlier as well. This contamination can range from electrical smells in the galley, through to reingestion of jet exhaust when there are strong tailwind conditions. However, the majority arise as some sort of oil smell, and that is acknowledged. I have the graph showing the reports and we will be able to speak to it during questions. I will ask Mr O'Keefe to distribute those to the members, and we can come back to that during questions.

Finally, with our people, we have taken a proactive stance and kept them informed of the issues on a regular basis. The industrial relations dimension of the BAe146 cabin air quality issue has not generally affected NJS. The industrial organisations representing our employees have not raised the matter and, as stated earlier, all of the information available is briefed to the flight attendants, pilots and engineers. As an aside, earlier in the day Mr Cox implied that he had coverage of the National Jet Systems pilots. That is not correct; he does for the Southern pilots, but not for our Airlink pilots. Specialist OH&S medical advice has been provided to several staff members, both engineering and air crew members. One flight attendant is currently seeking workers compensation for sickness alleged to be attributed to air contamination – which goes back to that earlier question. That particular claim is currently with the Workcover insurance company and is under investigation.

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I turn now to two issues that have been submissions to the committee. We find it is somewhat of a surprise that the one tabled this morning from First Officer Michaelis is now being aligned with the cabin air quality issue. Similarly, First Officer May's written submission to the committee: her case was a heart condition, and she stopped flying and left the company with a loss of licence payout. Also, the one tabled today was a chronic fatigue syndrome issue that was diagnosed, and that pilot also stopped flying. We have checked the records to make sure that that is the case, that we have given full consideration to our people and that we have given them the correct medical attention they require during those processes.

In closing, I would like to reiterate the NJS view that the BAe146 fills a very valuable place in the rural air transport infrastructure. It is able to operate from small aerodromes and yet still travel long distances, such as Alice Springs to Perth, at jet speeds comparable to the larger Boeing types. I understand that several MPs and senators enjoy the direct Canberra to Brisbane service with Airlink. A very comfortable aeroplane in which to fly, the 146 has gained wide passenger acceptance, particularly in the regional centres. I think you mentioned it was the 146 or walking, Mr Acting Chairman.

ACTING CHAIRMAN—I have spent a fair bit of time in them myself.

Capt. Siebert—Along with other transport aircraft it has, from time to time, suffered from contamination of the air in the cabin. The frequency of such occurrence is extremely low, and the level of contaminants is well below the accepted standards. NJS has striven to adopt the highest maintenance standards and has incorporated aircraft modifications to improve the quality of the cabin air. On that point we are quite happy to invite the committee to visit our facility in Adelaide to look at the modifications that are going into aircraft, also our statistics and safety database and our maintenance records.

ACTING CHAIRMAN—In your presentation, you said you had one WorkCover; you did not mention litigation. I assume from that that there is no litigation.

Capt. Siebert—That is correct. There is no litigation with any of our employees on this issue. There is only the one matter that is open at the moment. That is with the WorkCover insurance company, and it is currently under investigation. It pertains to a flight attendant who made a claim mid-last year alleging that she became ill in 1997 from the air in her working environment.

Senator CRANE—Back to you, Mr Chairman, I will invite you to go first this time.

CHAIR—I will not go first because I had to go out for a little while.

Senator FORSHAW—In your remarks, Captain Siebert, you referred to the incident on 10 July which led to the BASI report. From what I recall, you said that only one of the pilots was affected and had to hand over. In my reading of the report, it actually says that the supernumerary pilot advised that he had felt nauseous. Can you just clarify this?

Capt. Siebert—Certainly, Senator. The investigation that was conducted by the company – I shall invite Mr Lodge to go into more detail in a moment – revealed that the pilot became dizzy and recognised he had some vertigo, but he certainly was not incapacitated. He formally handed control across to the first officer, which is a standard operating procedure between the crew, and the first officer went ahead and landed the aeroplane. This occurred on final, as the aeroplane was intercepting the ILS localiser. So it was very shortly before landing, and that was discussed in the earlier evidence. The first officer never smelt anything and was not affected. The supernumerary pilot, in his first report to the company, said that, yes, he could smell it and felt a little bit nauseous but was unaffected generally. There is a slightly different interpretation put on it in the final report

from BASI. I invite Mr Lodge to go into the detail, because he conducted the initial investigation into this incident.

Mr Lodge—The company became aware of this incident on the day after the early morning flight into Melbourne. I was rung at about 4 o'clock in the afternoon by Captain Devine, who was my surveillance captain on the flight, and he wanted to discuss this particular matter. Briefly, he indicated that Captain Kolver had handed control of the aeroplane over to the first officer shortly before touchdown and that he had himself detected oil fumes or an odour that caused mild nausea.

Senator FORSHAW—He was the supernumerary pilot?

Mr Lodge—Yes, he was the supernumerary pilot. I asked him specifically if he considered he was nauseous to the degree that he would be incapable of flying. He said, 'Oh no, nothing like that. I was quite capable of flying the aeroplane.' I subsequently asked all three pilots to give me a report in writing. Those reports came from Kolver, who said that, yes, he had smelt an odour, had become nauseated, had begun to lose concentration and handed control to the first officer. The first officer stated that at no time during the flight did he smell anything and he believed that his reactions were perfectly normal. Devine, as he had previously stated to me verbally, said that, yes, he had smelt an odour that he identified as oil and, yes, it had made him feel nauseous but he was still quite capable and in control of his faculties.

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Senator FORSHAW—Had there been any reports from any of those persons on earlier flights that they had experienced fumes and, in particular, that they may have affected their control of the aircraft?

Mr Lodge—Yes, indeed. Approximately 2½ weeks earlier Captain Kolver had reported in the maintenance log an odour that he interpreted to be oil fumes. That was investigated by the engineers at Brisbane and, with ground running the aeroplane, they were unable to replicate this odour, or smell. Under the circumstances, the engineers believe that the aircraft had a minor defect that did not affect the airworthiness of the aeroplane, and they entered the item in the maintenance log as an item to be rectified at company convenience.

Senator FORSHAW—This is the reference to the supernumerary pilot having examined the aircraft maintenance release and noted a deferred defect concerning oil residue at the No.2 airconditioning pack inlet?

Mr Lodge—That is correct.

Senator FORSHAW—And that had been entered on 17 June.

Mr Lodge—Yes.

Senator FORSHAW—The other question I had about this related to this issue of whether or not the crew should have utilised the oxygen masks. Could you comment on that, given that it has been raised and it was referred to in the report as well?

Mr Lodge—In retrospect the company concluded that, under the circumstances, pilots should have donned oxygen masks. It is always very easy to make these accurate assessments in retrospect, but at the time Captain Kolver, a very experienced and intelligent captain, obviously considered the matter and decided not to use an oxygen mask.

Senator FORSHAW—Did he consider it? There was a comment, I think from Dr Donohoe, this morning that there may not have been sufficient time for them to consider that option.

Mr Lodge—With regard to time, the evidence from Mr Phillips was that the aeroplane was approximately two minutes from touchdown. The matter of donning oxygen masks is practised as an emergency procedure and takes less than five seconds from thinking about it to having it on and working.

Senator FORSHAW—Are you telling the committee that the pilot actually did consider whether they should put the masks on and decided that it was not necessary, even though the company said later that you believe it should have been done? Or is it the case that there is no evidence as to whether they did consider it or they did not consider it? It is not clear from the report.

Capt. Siebert—The issue of whether the crew should have donned the oxygen masks was raised by us, NJS, during the interested party comment phase on the draft document. There was no comment about this specific issue in the initial draft of the occurrence brief. We raised that and then the final document came out with one sentence in there, which you are referring to, which said they decided not to put the oxygen masks on due to the short time interval between turning onto final and actually touching down. It was further compounded by the fact that there was actually no smoke in the cockpit during that time. It was just a small odour and this particular captain was susceptible to that.

We heard some evidence earlier on that different people are affected. Again, we referred that back to BASI, saying we would be interested in the aviation medicine aspects with regard to why one pilot was affected to the extent that he became dizzy and had to hand control over to the first officer and, on the other hand, the first officer did not smell anything and was completely unaffected and the supernumerary pilot did detect it but was just slightly nauseous. Those are fundamental questions that we believe should have been addressed during the investigation.

Senator FORSHAW—I take it from your reference to the issue of the oxygen masks that you are putting to us that if there is a problem, which apparently there was, then the use of oxygen masks is a safety procedure designed to limit or eliminate the risks that might otherwise occur.

Capt. Siebert—That is absolutely correct. Mr Lodge mentioned before that during our simulated training we practise the quick donning of oxygen masks, which takes less than four to five seconds once you are trained to use these and to put them on. We have reiterated to our crews, as a part of the process of this incident, the importance of immediately going onto oxygen should there be any doubt as to the quality of the air that might affect the crew. That has been further updated recently by an all-operator message from British Aerospace following an incident in the United Kingdom, where carbon dioxide from a large load of dry ice that was loaded in a European airport started to flow forward into the cockpit and the pilots became affected to the extent of getting headaches and what not. They have reiterated the same procedure: if there is any doubt, you are straight onto the oxygen.

Senator FORSHAW—Thank you.

Senator O'BRIEN—Perhaps you could tell the committee what the timetable is for the modification of your fleet of 146s?

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Capt. Siebert—Yes, I will ask Mr Snook to address that. In broad terms, we have adopted the identical modification packages that Ansett helped to develop with British Aerospace and they are currently going into aeroplanes in a step process similar to Ansett, but Chris will go to the details.

Mr Snook—Further to what John said, the modifications are released by British Aerospace. The medium by which they do that is by a service bulletin. The service bulletins are being written for the National Jet fleet progressively as we introduce it aircraft by aircraft. National Jet Systems will have the modifications introduced to the fleet of aeroplanes by the end of this year. That is including the Qantas aircraft, the Southern aircraft, the AAE aeroplanes, if applicable to a freighter, and also the National Jet aeroplanes.

Senator O'BRIEN—When did the program start?

Mr Snook—National Jet placed a purchase order for the program approximately six months ago.

Senator O'BRIEN—It is an 18-month program then?

Mr Snook—It is about an 18-month program to get fleet saturation, yes.

Capt. Siebert—It is true to say also that it is a fairly extensive rework of the pipes, as you may have noticed during your visit to the facility in Brisbane in terms of rerouting the pipes and taking all the furnishings out of the cabin.

Senator O'BRIEN—Yes, the aircraft we saw was stripped down to bare fuselage. That might not be the correct way of describing it, but there was nothing in it.

Capt. Siebert—That happens in Adelaide during what we call the C check. That is when we are progressively installing these modification kits into the aeroplanes.

Senator O'BRIEN—So the C check is a major maintenance schedule every 20,000 rotations or something?

Mr Snook—No. We bring in the C check every 12 months, 2,000 cycles.

Senator O'BRIEN—There was some evidence from Mr Cox that some survey forms that his organisation had put out had been distributed at NJS and someone had removed them from pigeon holes, I think he said.

Capt. Siebert—I noted that with interest, Senator. I had become aware last year that the Flight Attendants Association of Australia was doing survey work. Truthfully, I was not aware that the Australian Federation of Air Pilots was doing that. Going back to the point though, that industrial organisation does not represent our pilots although we have some pilots who are members of the AFAP. So their program –

Senator O'BRIEN—I was wondering if there was another organisation.

Capt. Siebert—Yes, our pilots are represented by the NJS Pilot Group which has elected representatives from each of the bases and they meet every quarter. That is the group that I mentioned that I brief on this program on what we are doing about cabin air quality and on safety generally.

Senator O'BRIEN—So you have an organisation for the pilots who fly the 39 aircraft that you currently operate?

Capt. Siebert—That is correct. There are in fact two groups. The Customs Coastwatch activity which Surveillance Australia provides and part of the group has separate industrial relations arrangements, if you like. The pilots in National Jet Systems are covered by a separate consent award and then the management of the bargaining and the industrial relations et cetera is covered by the National Jet Systems Pilot Group.

Mr Lodge—To add to that, the National Jet Systems Pilot Group is not an organisation within the meaning of the act, but it effectively represents the pilots in all matters. Indeed, the pilots are all employed, 100 per cent of them, on workplace agreements, individual contracts.

Senator O'BRIEN—Australian workplace agreements?

Mr Lodge—Yes.

Capt. Siebert—On a further point, the first of the comments made by Mr Cox that there was intimidation and that pilots are not reporting this, we are somewhat mystified by that because we have an open reporting system, as mentioned by Qantas. If pilots, flight attendants, engineers or any member of our organisation wish to be kept anonymous, they can mark it confidential and that is respected. Additionally, there is a CAIR program, which was talked about.

The graph in front of you, which I distributed earlier, shows an increasing number of reports coming from our people as this issue is becoming more public and people are more aware. There are two particular spikes there. One follows the considerable media attention to this issue with the SBS program and the *7.30 Report*. That shows that spike there in May 1999. Similarly, there is another spike where we have had a large number of reports coming into the safety department. That followed the Flight Attendants Association of Australia mail-out to their people just prior to your hearings in Canberra in November.

We have an open reporting system. People can file their reports confidentially if they so wish. We do not agree with the contention made by Mr Cox that there was some problem with people being coerced or some pressure being applied to them.

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Senator O'BRIEN—These occurrences would not coincide with the incidences of oil leaks, for example?

Capt. Siebert—No. I will ask Mr Snook to go to some of the statistics. Our incidence of oil leaks has been fairly constant to the extent of a statistical basis of around 0.1 per cent of flights departed. That was discussed earlier with Qantas. It is maybe one per fortnight or around that. Speaking to this graph again, the inputs to the safety department –

Senator O'BRIEN—Those oil leaks are about once a fortnight?

Capt. Siebert—It is odour; it may not be an oil leak. A typical one is when we are parked with the aircraft's tail into wind with the engines running. A large amount of the jet exhaust can be reingested into the airconditioning system. It is very unpleasant. I am sure people have experienced it. You can get short-term effects from that as well, so that is logged. These reports are generated from a variety of sources, starting from the flight attendant's trip log.

If there is any cabin air quality issue that comes from the flight attendants' department to the safety department, I have sight of every operating crew report. As soon as something comes through with a cabin air quality issue, I change it to this safety occurrence report, which is our database. We investigate it with one of my investigators and get back to the people. I go to the engineering department and see if there are any problems with the engines et cetera. The next level up is the air safety incident report. There are very few of those. You alluded to the one in Darwin and, of course, there is one that was under question with the freighter.

Senator O'BRIEN—What is the expected life within your fleet of 146s? We have some evidence, which no doubt you have seen, about the long-term life of the aircraft as it moves from one fleet to another. I do not know whether your fleet started with new aircraft in all cases.

Capt. Siebert—The aircraft that came were of various ages and from various sources. The question that arose during the previous session with Qantas was about the next aeroplane coming to Airlink. It is, in fact, a BAe146-200 coming from overseas to be refurbished in Australia and introduced to the Airlink operation. I could ask Mr Nottage to address the longer term issue of the future of the 146s.

Mr Nottage—All of our aircraft are operating under contract for whichever entity, whether it be Qantas or AAE. So we will provide the aeroplanes for the length of time that our client wants them. Most of the aeroplanes currently in service with Qantas are contracted for six or seven years. If they wish to renew using that aircraft again for a further term, then we would commit to that. Personally, I would see the aircraft in our fleet for probably close on 10 years.

Senator O'BRIEN—So your current fleet has been running for some time. Given that the BAe146 aircraft is not being made now, whatever replacements online, whether they come from British Aerospace or Canada Air or whatever, they are matters for subsequent decision. I am just looking to see what you would expect the life of this aircraft to be in the mainstream Australian commercial air industry.

Capt. Siebert—I think we are fairly well aligned with the information passed by Captain Jensen to the committee that this particular aeroplane is well suited to the Australian conditions where we have long distances to cover. We obviously want to do that at a reasonable speed. Yet we have a large number of rural aerodromes with short runways and also the pavement depth is relatively shallow so some of the heavier weight aeroplanes cannot operate there. The 146 can.

As part of our normal procedures, we are always looking at what is on the horizon. There are few aeroplanes on the drawing boards at the moment that show some promise. With our peculiar conditions here in Australia, with those rural requirements for long distances, there are not many aeroplanes that fit the bill for the task.

Senator O'BRIEN—Of course, technology moves apace. What I was trying to get to is that we have had the aircraft for a period of time: for roughly how much longer are we going to have them before they are replaced in Australian air space?

Capt. Siebert—That is a very difficult question to answer. As I said before, we keep a watching brief. I think Mr Nottage's view about the longer term is the best as we can look at at the moment. We are keeping a watch on the new technology that is coming out, and some of the aeroplanes that are about to be test flown and some of the specifications look quite promising. But at this stage National Jet Systems does not have any plans to incorporate those aeroplanes and change the 146 fleet. As Mr Nottage mentioned, we are reactive to our customers and our clients.

Senator O'BRIEN—There are aspects of my question that have not been answered. Perhaps if we have time we can come back to them.

Senator CRANE—In terms of the size of your fleet of BAe146s, would you have the largest fleet in Australia? Where do you fit in?

Capt. Siebert—We do have the largest fleet of 146/RJ aeroplanes. In fact we have one of the largest fleets worldwide. As part of our maintenance practice – coming back to Mr Lawrie Cox's comments which were rather denigratory to our maintenance people – we actually specialise in the 146 fleet, and perhaps Chris might want to address that as well.

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Senator CRANE—While you obviously do your own maintenance and that of Qantas, do you service any other aeroplanes for any other companies?

Mr Snook—The 146, as Captain Siebert has pointed out, is our primary aircraft. We specialise in operating the 146. Our engineering staff is focused on 146 and we have one of the largest fleets in the world so therefore we have a lot of expertise in the aircraft type. To answer your second question, National Jet does not do third party maintenance on aircraft; we maintain only our own fleet.

Senator CRANE—Qantas said they took an example of a plane that had a leak and then they put it through an extreme pressure test or odour test. Have you done any similar work to that?

Capt. Siebert—The work that we have done in Australia is more or less three-pronged. In the aviation safety business there is a free and open exchange of information on safety related matters, and the cabin air quality issue is one in which we communicate with each other. The work done by Allied Signal for Ansett was done with the aeroplanes in flight and they had also done some previous work with the Queensland University trials and the expert group that was discussed earlier. Qantas, through their Southern operation, did the trials of aeroplanes with the airconditioning units operating at maximum temperature and flow rate and scientific analysis was done there for OH&S. For our part, we have been analysing all of that data, and the work that we have been doing is in a separate area. We have been working with the universities in South Australia to devise a piece of equipment that the engineers could use to detect where an odour is coming from and rapidly correct the defect. One of our worrying things when there is an odour is: where is it coming from? That is the question. We have been working on that field.

Senator CRANE—In terms of this survey, you told us that fairly consistently, about once a fortnight, an odour occurs. If you link it back to the oil leak component, there is no consistency in this other than the spike takes off and then it comes back in different time spans. I am referring to oil leaks here and there are oil leaks and oil leaks. Is there one that is sort of bad and which will show up dramatically, whereas you could have a minor oil leak or a different sort of oil leak, which does not show and create an odour problem?

Capt. Siebert—Certainly, there are laid-down limits by the manufacturer. At one end of the scale it might be just a small annoyance of an odour when you change air over from, say, the APU to the engine air, and then there are limits where, if they are exceeded, you actually get a rather more serious odour. I will ask Chris to address that in terms of the engine removal rate statistics.

Mr Snook—Further to John's point, 'oil leaks and oil leaks' is a very true statement. The ALF502 engine, which is fitted to the 146 –

Senator CRANE—I am a farmer and I have got a few tractors. There are oil leaks and oil leaks, let me tell you!

Mr Snook—Similar to your tractor, the 502 can leak from the fan area, which is what we deem a No. 9 bearing seal, and that oil can be reingested into the core. That is only a very, very slight leak, and it is quite evident on the ground if it occurs – you can actually see oil leak into the bypass of the engine. Another area is a No. 1 seal. It is inside the compressor core of the engine, and that is extremely difficult to pinpoint on the ground. It normally shows itself either by a report of the cabin smell or an increase in oil consumption. National Jet Systems have developed in-house software to monitor oil consumption of these engines as a way of helping us troubleshoot cabin odour, cabin smells.

There is another area on the engine that is even harder. It is the difuser, and that is only visible if you physically do a boroscope inspection of the engine. You take a little plug off the bottom of the engine, you

stick a boroscope in there and you look for wetness. So, yes, for sure, some of these leaks are quite evident and some of them are not so evident.

Senator CRANE—Right, thank you. In terms of this survey, is it just cabin crew and pilots, or does it include passengers? I do not know whether you addressed that.

Capt. Siebert—This safety occurrence report is from the safety department database and it generally does not include passenger reports. Because of the nature of the business, those reports generally would go to Qantas. We have not had any come back to us on a particular aeroplane that has got a problem; they have certainly come back in certain other areas, in service issues and whatnot. So this graph in front of you is from our employees. Generally, they will be from flight attendants, engineers and pilots.

Senator CRANE—I refer particular to British Aerospace, but I understand the motors are now made or serviced – I am not sure of the exact detail – by Honeywell but they used to be Allied Signal. Have you had good cooperation from them in dealing with the issues, or has that been a grind? Can you give us an overview of how that side of the question has worked?

Capt. Siebert—With respect to Honeywell?

Senator CRANE—As I understand it, it is a British Aerospace aircraft and they put Honeywell engines into it.

Capt. Siebert—First of all, with respect to the aircraft manufacturer, we have been working closely with them in overcoming many issues, not just this cabin air quality issue but technical problems and updated modifications. As I said earlier, we did install the updated APU, the Sundstrand unit. I will ask Chris to address the XRP program, which is pertinent.

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Mr Snook—I will see if I can answer all of your questions. Allied Signal acquired Honeywell late in 1999. They have taken the Honeywell name – they figure there is more good faith in that. That is where the change comes from Allied Signal to Honeywell. So, yes, the engines are Honeywell engines. The manufacturers are very cooperative with the operators on the issue. We send our engines back to Allied Signal Phoenix, or Honeywell Phoenix, the manufacturer, for all the rework; we do not do it in-house.

We have written a work scope in conjunction with Honeywell which addresses some of the issues – for example, we change out all the carbon seals, every HSI, irrespective of their condition, or every shop visit, irrespective of their condition. Honeywell have an office here in Melbourne and we are in regular contact with them. British Aerospace, as you probably are aware, have an office in Sydney. In fact, we have a British Aerospace representative based at our facility in Adelaide. So, yes, we get good cooperation out of the manufacturers.

Senator CRANE—Good.

Senator O'BRIEN—On the BAe146-200 that you are acquiring for, I think, the Southern operation, you are acquiring that from another service, so how old would that be now? When would that have been made?

Capt. Siebert—That is the one going into Southern. I am not sure of the age. Chris, do you have details, or perhaps Peter?

Mr Nottage—No, I do not.

Capt. Siebert—We could take that on notice and give you an answer to that.

Senator O'BRIEN—Yes, if you would please.

Capt. Siebert—That is a 200 model that is going to Southern.

Senator O'BRIEN—Yes. You described it as the 146-200.

Capt. Siebert—That is correct.

Senator O'BRIEN—Do I assume, Mr Nottage, that that would have the six to seven years contract life?

Mr Nottage—There are two aircraft being introduced – one for Southern and one for Airlink. We will have maintenance responsibility for the Southern aeroplane under a five-year contract. The second one being brought in for Airlink is also under a five-year contract.

Senator O'BRIEN—I would appreciate that other information, if you could provide that.

Capt. Siebert—Okay.

Senator O'BRIEN—Thank you very much.

CHAIR—Thank you for your evidence and for appearing this afternoon.

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[3.21 p.m.]

PLUMMER, Mr Julian Charles, Manager, Aviation Lubricant Sales, Mobil Oil Australia Ltd

CHAIR—Welcome. If you have an opening statement that you would like to make, we would be very pleased to hear it.

Mr Plummer—Yes, Senator. Yesterday I provided a copy of Mobil's submission to this committee, prepared by Dr Carl Mackerer, our principal toxicologist, and Dr Edwin Ladov, our Manager, Product Stewardship and Toxicology. Mobil do not consider accidental exposure to oil vapours in an aircraft cabin to be 'normal use', but the levels that can be reached are comprehended by our internal and published risk assessments and are considered safe. Mobil, either here or in the US, have not been approached by persons who have provided evidence to this committee, other than the airlines involved, Mr Stephen Holland of Worksafe Australia, and Dr Steen Kristensen of NICNAS, although we are always prepared to provide information and analytical methods to assist in evaluating health concerns.

Our submission explains why our material safety data sheet, MSDS, has changed over time in line with community expectations and ongoing risk assessment. Some people have taken these changes to mean that we have changed the formulation of jet oil II over time, removing or changing ingredients. This is not correct. The MSDS changes reflect meaningful reporting of all possible risk factors to the best of our knowledge as time progresses.

Following allegations early last year that our labelling was not correct on jet oil II packages, we resubmitted the basis for our labelling and that Mobil jet oil II is non-hazardous by Worksafe criteria to the National Occupational Health and Safety Commission. On 17 June last year we received their reply, agreeing that our labelling is correct and that Mobil jet oil II is correctly classified as non-hazardous. Copies of this correspondence are attached to our submission.

Modern jet engine oils all contain tricresyl phosphate, and it is the performance of these oils which has allowed airline travel to develop to the extent we see today. Without these products, the large high powered engines which power large aircraft would not have been developed and aviation could be 30 or 40 years behind the standard we enjoy today. The tricresyl phosphate (TCP) additive used in jet oils provides the lubricant with improved anti-wear and load carrying capability. Its properties are unique, and no replacement has been identified which can meet the stringent performance requirements of a modern jet engine oil. Our submission details that the TCP used in jet oil II is low toxicity, about 25 to 60 times less neurotoxic than TCPs used in the 1950s. We also state that the TCP used in our new jet oil, Mobil jet oil 291, is non-neurotoxic and explain the differences between this new TCP and the TCP used in jet oil II and other jet oils.

Our risk assessment details that it is not possible to receive a harmful dose by inhalation at the threshold limit value of five milligrams per cubic metre, which would be visible mist. It is also not possible to receive a harmful dose from accidental skin contact, and there is no record of a jet oil formulated with modern conventional TCP causing human toxicity.

In our submission, Mobil rebut some statements and portions of submissions made to this committee by Dr M. Donohue, Dr J.C. Balouet and Dr C. Winder. One area not rebutted in our submission is contained in the submission made by Judy Cullinane. In volume 2 of the submissions, at page 83, Ms Cullinane queries why Mobil delivered to Ansett in January-February 1998 a new batch of Mobil jet oil II to use in place of the previous stock, and queries if the previous stock was returned to Mobil and why samples were not taken for analysis. I do not know on what observations these statements are based; however, Mobil has not recalled nor had returned any jet oil II.

We believe our products are safe, and we are willing to share information we have developed on the health and safety effects of our products and to cooperate with stakeholders and appropriate authorities to ensure a safe flight environment for aircraft cabin crew members and passengers.

CHAIR—Thank you very much. There is a submission from the National Industrial Chemicals Notification and Assessment Scheme. It uses a paper by Mobil employees titled 'Neurotoxicology of Tricresyl Phosphate, or TCP'. Apparently the paper is by Carl Mackerer and others and it says of the effectiveness of TCP that it has caused lubricant formulators and manufacturers to use caution in replacing, for toxicology reasons, the TC additives that perform well in critical applications. Can you give the committee a bit of an analysis of TCP – whether you are confident that it does or does not have toxicology implications and why it is used in Mobil? I realise it is technical; we will try to understand.

Mr Plummer—I am not a chemist, so I will try to keep it at a level that I can also understand. TCP, or tricresyl phosphate, is used as a load carrying additive. Because of the extremely high temperatures in a jet engine, the sorts of additives we use for motor oils and that type of thing just will not work. This is the only product that has worked over the years. TCP is a very mixed chemical compound. It is not just a pure substance called tricresyl phosphate; it has a large number of chemical compounds.

Tricresyl phosphate is present in jet oil at approximately three per cent, which is around 30,000 parts per million. The neurotoxic components are orthoisomers which are only a small proportion of the TCP and are present at roughly 140 parts per million in the jet oil. Jet oil is neurotoxic if you drink it, and we have established doses for both a toxic one-off dose or a toxic ongoing dose, which is a smaller amount that you would have to ingest each day. Based on normal things, these would be impossible to achieve. The area we are looking at is someone who might eat a sandwich when they have not washed their hands, and they are not going to ingest these quantities.

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The studies show that it is possible to breathe a mist. We are now talking about a mist of the oil which contains three per cent, whereas I suspect the 0.1 milligram per cubic metre that was mentioned as the NOHSC requirement – the maximum – was just TCP. I am now talking oil containing three per cent TCP. It is possible to breathe a mist at five milligrams per cubic metre, which is the accepted maximum workplace level for lubricating oils, five days a week, eight hours a day, in an ongoing sense without absorbing a toxic dose through inhalation. For dermal contact, we have established that it is possible to cover your entire body surface with the liquid for six hours and not absorb a toxic dose through the skin. Our prime warnings are against ingestion of the product. It has always been believed that more pure forms of TCP would not do the same lubricating job. It relied on the variety of molecules in there to perform the function.

We have mentioned earlier our new product, jet oil 291. That has been on the drawing board since 1989. At this stage I should also add that the product has a number of features that we have aimed for in developing new jet oil. Jet oil II has been on the market for approximately 38 years. It has had a long life cycle and we will probably have many more. But in jet oil 291 we have got a product now which has lower deposit forming tendencies both in the liquid and vapour phase – these are deposits in engine bearing compartments or in lines and that sort of thing. The load carrying has been improved, which will give better gear bearing life. Excellent bulk oil stability means that it lasts virtually forever without requiring oil change. Improved elastomer compatibility means we have a lower reaction level with the seal materials used in engines. As well as that, it has a non-toxic additive pack. We have developed a TCP which has effectively eliminated the ortho isomers, which were the 140 parts per million of toxic elements previously. Earlier, it was thought that if you did that you are going to degrade the performance. We have actually managed that and effectively improved the performance. Does that cover your question?

CHAIR—That was what I was looking for.

Senator CRANE—Not bad for a non-chemist.

CHAIR—Did you understand it?

Senator CRANE—Absolutely.

CHAIR—I did.

Senator CRANE—A chemist would have confused me. With Mobil jet oil II, what is the significance of the II? Is that a modification of mobil jet oil I?

Mr Plummer—No. There is some numbering to our oils. Jet oil II is called a second-generation oil. That is where the II comes from. The oils before that were far lower in performance standard, did not last very long in engines, and did not work anywhere near as well as we described as the second-generation oil. We put out high temperature oil in the 1980s which had a research or laboratory number of 254. It was flight tested under those numbers. Mobil wanted to call it jet oil III but the people who flight tested it wanted to stick with 254 because that was what they were used to. We put that product out as jet oil 254, which is solely aimed at some high temperature engines. We have developed 291 and, again, the 291 is a laboratory number. It has been developed effectively as our fleet oil which will carry us into this century. We are introducing it to the market now.

Senator CRANE—How long has jet oil II been –

Mr Plummer—Approximately 38 years.

Senator CRANE—Is that used consistently through all aircraft? Is it a special oil for the BAe146s?

Mr Plummer—Mobil has roughly 51 per cent of a world market for turbine oils. Jet oil II is certainly the main grade and would account for over 90 per cent of that. My suggestion would be about 45 per cent of turbine engines worldwide would run on jet oil II.

Senator CRANE—Have there been any other problems that you are aware of, in using this oil, with seals in other aircraft?

Mr Plummer—No. I would point out I am not an expert in that area but I would concur with the earlier opinions. To my knowledge these things appear to be fairly isolated to Australia and Alaska – this is the MD80 with Alaska Airlines.

Senator FORSHAW—Can you tell us a bit more about oil 291, given that it was said earlier that there is some expectation that this oil may be an advance because it does not contain the TCP? Is this right?

Mr Plummer—Yes. From our point of view we want to make it clear that the oil was not developed just to eliminate the toxic elements of TCP. That was just one of a number of development parameters for it. The way we develop an oil is that we basically put on paper what we want and then the formulators make it. Effectively, they blend it. We go for a US military approval, which is mandatory for virtually any airborne application you want to use the oil for. We obtained that with this product in 1993 but virtually all the major engine manufacturers do not just accept the military approval. They want to see the product actually work in their engines. So, since 1993, we have been going through a program with various operators. Ansett have been involved with us for this one for the Honeywell approval where the oil basically goes into an engine for a period of time. It varies depending on what the manufacturers want. At the end of a time, the engine will be inspected. If the manufacturer is satisfied, then they will put the brand on the approval list.

At this stage, we are basically waiting on the outcome of one gear inspection from one of Ansett's engine by Honeywell in the US. We are expecting an approval for that engine imminently, probably within weeks. For other major engines around, the majority of our approvals are obtained. Pratt and Whitney and Rolls Royce are all behind us. We are just waiting on paperwork from GE. Effectively, the oil is now on the market although at the moment we do not have a complete slate of approvals but that will be completed within the next few weeks or months. I should add that my purpose in life is to convince the airlines to use the product.

Senator FORSHAW—Thank you.

Senator O'BRIEN—In terms of the oil itself, will it be manufactured in Australia or is it going to be an imported product?

Mr Plummer—No. All of our product is manufactured at one Mobil facility – Mobil Chemical in Edison, New Jersey – and it will continue to be manufactured there.

Senator O'BRIEN—It seems, from the information that we have been given, that problems to do with oil and fumes in cabins seem to be much more common in the BAe146 than in other aircraft. Has Mobil had a look at that matter at all? Is it a matter that interests Mobil?

Mr Plummer—I think our interest there is peripheral because of the effect it has on our product and the word that goes around. That is to be addressed really by the engine maker and the airframe manufacturer. That is not our area. We do talk with both airlines and the manufacturers frequently on all the aspects of our product. But, no, that is not an area that we get involved in. I guess I could also add to that that while Jet Oil 291, the new product, has got a number of features, in all likelihood it will smell equally as unpleasant when it is burnt. It is not going to solve a fume or smoke problem.

Senator O'BRIEN—So it comes down to perhaps rerouting the air intake for the cabin through something other than the engine, which is not a matter for Mobil.

Mr Plummer—There are practicalities to consider but, certainly, if you could bypass the engine as far as the air supply goes, yes, these problems would not exist. But it is not my area to redesign the aircraft.

Senator O'BRIEN—No. Mobil does a lot of things but not that one.

Mr Plummer—No, we stop short of that.

Senator CRANE—In terms of the oils, do the Air Force planes use the Mobil jet oil II?

Mr Plummer—Yes, they do.

Senator CRANE—Thank you.

CHAIR—I think probably there are not any more questions we can ask. It is not because we are not interested but your answers were pretty comprehensive. It may be though that there may be other evidence we receive and we might want to come back to you on that. I presume you are keeping an eye on the *Hansard* transcripts.

Mr Plummer—Yes, certainly. We are more than willing to help if we can be of any value.

CHAIR—All right. Thank you for your evidence. There will be a transcript of this hearing today available probably next week, so we will make sure you get a copy.

Mr Plummer—Thank you, Senator Woodley.

CHAIR—That concludes the public hearing. There will be an in-camera hearing a little later, depending on when we can get our witnesses together. We will require everyone else to leave the room, except for the witnesses, the senators and Hansard.

